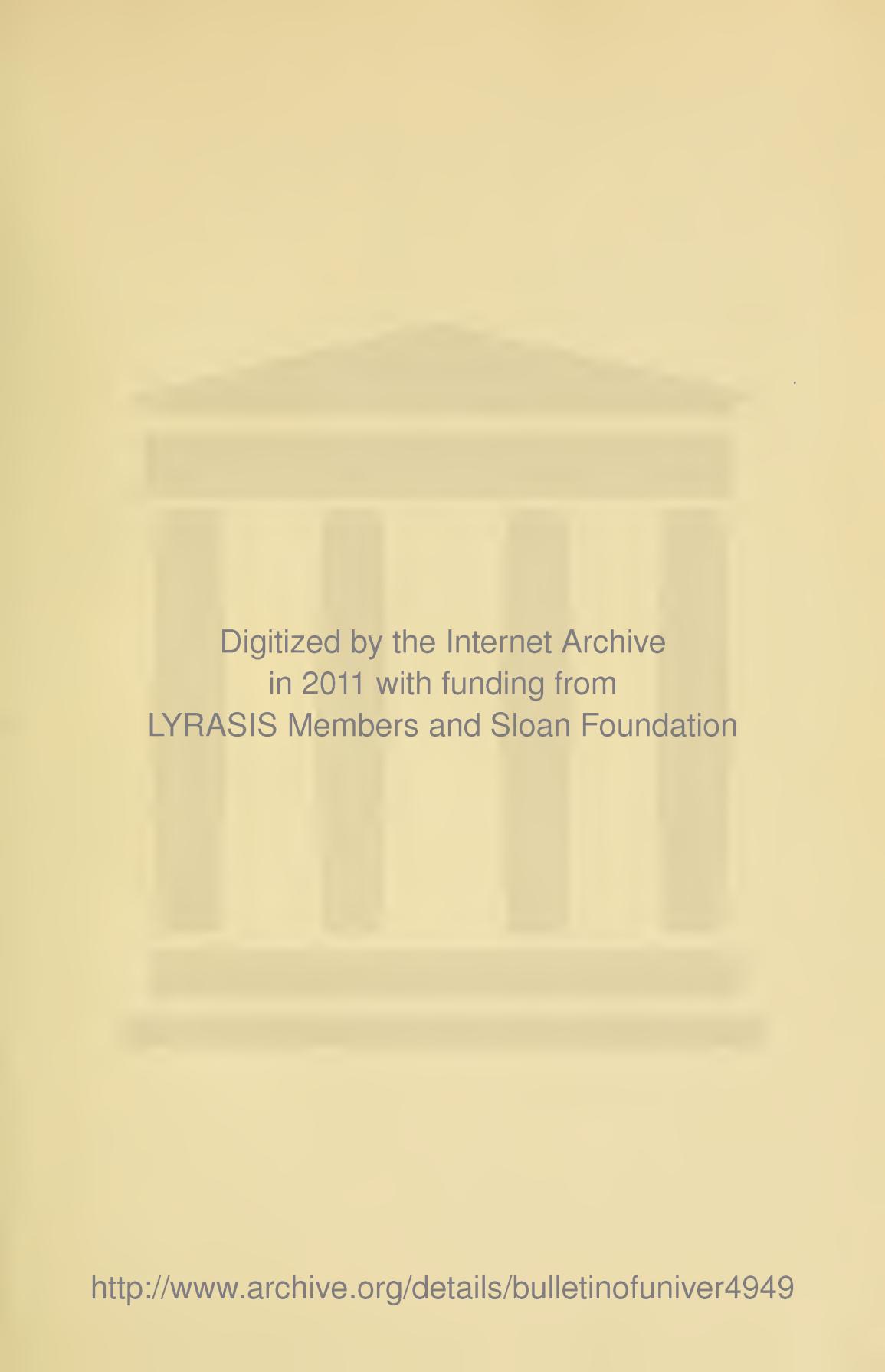




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# BULLETIN

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*University of Maryland*



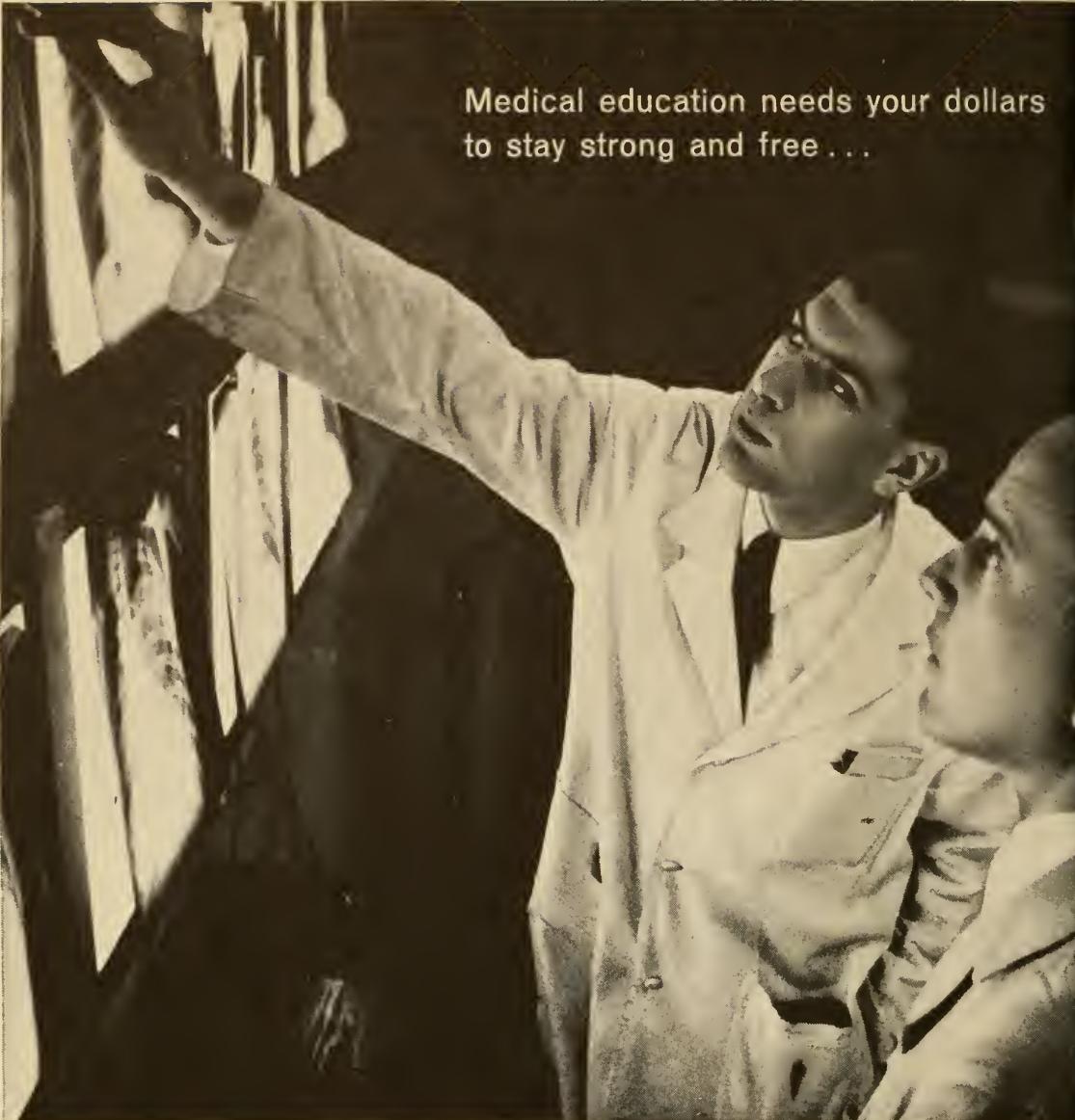
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# BULLETIN *School of Medicine*

## *University of Maryland*

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*January, 1964*

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# BULLETIN

## *School of Medicine* *University of Maryland*

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# The Reproductive Behavior of the Adolescent Female

ARTHUR L. HASKINS, M.D.

ISRAEL AND WOUTERS<sup>1</sup> studied 3,995 teen-age obstetric patients as part of a group of 40,709 parturients. A higher incidence of pre-eclampsia, one day fever, puerperal morbidity, and prolonged labor was noted among the teen-agers. This study and its findings provided the stimulus for a review of the obstetrical data at the University of Maryland Hospital in regard to the reproductive behavior of the female teen-ager.

The medical, physiologic, and ethnic implications of study of the Maryland data were considered to be of sufficient interest to warrant publication of part of the material and the significant conclusions. Although obviously of greater local than general interest, the experience at the University of Maryland Hospital in the care of gravid teen-agers might find some universality of application to specific medical or sociologic problems elsewhere.

The term adolescent, used throughout this study, refers to the period of life between puberty and maturity. Puberty is defined as the state or quality of being first capable of bearing offspring. Maturity, although usually referable to completeness or cessation of growth and development, as used herein, is the attainment of the age of 20 years. It is apparent that this material reflects more than a teen-age experience, since the ability to reproduce comes to some individuals who have not yet reached the teen-age.

The often observed fact that racial, cultural, or sociologic variations may result in differences in physiological and medical behavior necessitated the division of our material into non-white and white groups. Had this division not been accomplished, potential differences between adolescent reproductive behavior and mature reproductive behavior might have been obscured or accentuated because of factors other than age.

The material is organized so that comparisons may be made between the reproductive behavior of non-white and white, as well as adolescent and mature parturients.

The pregnancies represented in these studies are those which occurred at the University Hospital from 1950 thru 1959 (Table 1). The total number of pregnancies were 31,495. The distribution between the white and non-white population was approximately equal. It should be noted that the non-white group of patients are primarily clinic in origin, whereas the white patients are pre-

Table 1. Adolescent Obstetrics,  
University of Maryland Hospital 1950-59

	Total	White	Non-White
Adolescent Pregnancies	7,069	1,752	5,317
Adult Pregnancies	24,426	13,266	11,160
All Pregnancies	31,495	15,018	16,477

Department of Obstetrics and Gynecology, School of Medicine, University of Maryland, Baltimore.

Table 2. Adolescent Obstetrics,  
University of Maryland Hospital 1950-59

	PARITY					
White	0	1	2	3	4	Total
Age under 15	20	0	1	0	0	21
Age 15 - 19	1,304	349	64	10	4	1,731
Non-White						
Age under 15	357	8	0	0	1	366
Age 15 - 19	3,816	826	252	48	94	4,951

dominately private. The 7,069 adolescent pregnancies represent approximately 25% of the total sample. Despite the equal distribution of the white and non-white population in the total pregnancies, the ratio of non-white to white in the adolescent pregnancy group was approximately 4-1.

The parity of the adolescents under observation is illustrated in Table 2. It is apparent from this tabulation that a significant number of pregnancies occurred in our population prior to the age of 15. In addition, there was an occasional patient in whom repeated pregnancy occurred prior to the age of 15. The overwhelming portion of this population was, however, in the 15-19 year group.

Many factors and correlations in our data were studied. In the final compilation either because of significance or interest the following items were tabulated: premature births, perinatal mortality, abnormal presentations, multiple pregnancy, fetal anomaly, uterine inertia, contracted pelvis, prolonged labor, placenta previa, premature separation of the placenta, cesarean section, and toxemia of pregnancy.

#### RESULTS

*Prematurity.* As defined in this study, the premature infant has a birth weight

of 1,000 to 2,499 grams. Our experience with premature births is tabulated in Table 3A. Prematurity probably contributes to or is responsible for approximately 50% of fetal mortality during the neonatal period. It is, therefore, the most common cause of neonatal death. Our prematurity rates varied from 8.8% in the mature white mothers to 17.8% in the adolescent non-white mothers. These data showed two trends. There is an increased premature birth rate in the non-white pregnancies. In addition, there is increased prematurity in the adolescent pregnancies whether these occur in the non-white or white population.

The usual medical factors associated with premature labor are chronic hypertension, premature separation of the placenta, placenta previa, heart disease, toxemia, and syphilis. In addition to disease processes, prematurity seems to occur with increasing frequency in those individuals with a poor economic background and in the primigravida.

There was no evidence of an increase in chronic hypertension, premature separation of the placenta, placenta previa, and chronic illnesses in the pregnant adolescent. It would appear as if some other causative factor was responsible for the general increase in prematurity among this group.

The economic and social background of the non-white population in our material is not as favorable as in the white population. Poor economics have been indicted as a factor responsible for the increase in prematurity rates in our non-white population. This factor does not, however, explain the increased prematurity rate in the adolescent mother in both the white and non-white population. There is no satisfactory explanation at once apparent in our data to account for

Table 3. Adolescent Obstetrics: Fetal Complications,  
University of Maryland Hospital 1950-59

	White	Per Cent	Non-White	Per Cent
<b>A. PREMATURE BIRTHS</b>				
Adolescent mothers.....	188	10.73	950	17.87
Adult mothers.....	1,167	8.80	1,796	16.10
Total mothers.....	1,355	9.02	2,746	16.67
<b>B. PERINATAL MORTALITY</b>				
Adolescent mothers.....	42	2.40	236	4.44
Adult mothers.....	464	3.50	597	5.35
Total mothers.....	506	3.37	833	5.06
<b>C. ABNORMAL PRESENTATION</b>				
Adolescent mothers.....	109	6.22	238	4.48
Adult mothers.....	684	5.16	569	5.10
Total mothers.....	793	5.28	807	4.90
<b>D. MULTIPLE PREGNANCY</b>				
Adolescent mothers.....	27	1.54	90	1.70
Adult mothers.....	140	1.06	143	1.28
Total mothers.....	167	1.11	233	1.41
<b>E. FETAL ANOMALY</b>				
Adolescent mothers.....	62	3.54	171	3.21
Adult mothers.....	614	4.63	407	3.65
Total mothers.....	676	4.50	578	3.51

the increased prematurity rates in the adolescent mother although primigravidity may be a contributing factor.

*Perinatal Mortality.* An important indication of the reproductive potential of any group is the perinatal mortality rate. Perinatal mortality is an all-inclusive term including antepartum, intrapartum, and neonatal fetal mortality. This is ordinarily defined in terms of perinatal deaths per thousand live births. Perinatal mortality in this study is defined as fetal deaths per hundred births and is tabulated in Table 3B.

Prematurity is an important contributor to perinatal loss. Prematurity has been demonstrated to occur with a greater frequency in the adolescent parturient. It might be reasoned that perinatal loss would occur with a greater frequency among the children of the adolescent mothers. The data indicate, however, a greater perinatal mortality rate in the adult pregnancies.

A partial explanation for this discrepancy may be found in the consideration of a greater incidence in maternal disease complicating pregnancies in the adult mother than in the adolescent mother. This would compromise the infants of the adult mother even beyond the prematurity factor.

Perinatal mortality occurred with a significantly greater frequency in the non-white pregnancies. This is probably the result of a variety of causation factors including an increase in disease complicating pregnancy in the non-white group as well as cultural, economic, and ethnic factors.

*Abnormal Presentation.* The frequency of abnormal presentation of the fetus is tabulated in 3C. There were 1,600 abnormal presentations recorded in the total material. This is the usual frequency of occurrence. There was no real difference in occurrence of abnormal presenta-

Table 4. Adolescent Obstetrics: Maternal Complications,  
University of Maryland Hospital 1950-59

	White	Per Cent	Non-White	Per Cent
A. UTERINE INERTIA				
Adolescent mothers.....	55	3.14	276	5.19
Adult mothers.....	342	2.57	395	3.54
All mothers.....	397	2.64	671	4.07
B. CONTRACTED PELVIS				
Adolescent mothers.....	79	4.51	795	14.95
Adult mothers.....	181	1.36	338	3.03
All mothers.....	260	1.73	1,133	6.88
C. PROLONGED LABOR				
Adolescent mothers.....	67	3.82	302	5.68
Adult mothers.....	300	2.26	357	3.20
All mothers.....	367	2.44	659	4.00
D. PLACENTA PREVIA				
Adolescent mothers.....	1	0.06	5	0.09
Adult mothers.....	68	0.51	47	0.42
All mothers.....	69	0.46	52	0.32
E. PREMATURE SEPARATION OF PLACENTA				
Adolescent mothers.....	23	1.31	81	1.52
Adult mothers.....	242	1.82	235	2.11
All mothers.....	265	1.76	316	1.92
F. PRE-ECLAMPSIA				
Adolescent mothers.....	195	11.13	1,025	19.27
Adult mothers.....	947	7.14	1,797	16.10
All mothers.....	1,142	7.60	2,822	17.12
G. CESAREAN SECTION				
Adolescent mothers.....	37	2.11	202	3.80
Adult mothers.....	475	3.58	632	5.66
All mothers.....	512	3.41	834	5.06

tion among the adult, adolescent, white, or non-white parturients.

*Fetal Anomalies.* The incidence of multiple pregnancy and other fetal anomalies is indicated in Table 3D and 3E. Studies involving greater numbers of patients than ours have shown that there is a greater incidence of twinning in the non-white mother than in the white mother. There is also a trend toward an increasing incidence of multiple pregnancy in the older gravid female. The University of Maryland Hospital data fail to corroborate these general observations. This lack of agreement may be related to the size of the sample involved.

Our data does, however, confirm the observation that fetal anomalies in general occur with a lesser frequency in the offspring of the younger than of the older mother.

*Maternal Mortality.* There were 43 maternal deaths in the 31,495 pregnancies. This is a maternal mortality rate of approximately 14 per ten thousand births or 0.14%. All of the maternal deaths occurred in the adult pregnancy group. If the maternal death rate had been the same in the adolescent pregnancies as in the adult pregnancies, we could have expected 10 deaths in the 7,069 adolescent pregnancies.

*Uterine Inertia.* Primary uterine inertia occurs with a frequency approximating 2% of all labors. It is more frequently found in the primigravida. Anxiety is a prominent personality factor in patients with uterine inertia.

In the adolescent pregnancy group there is a predominance of primigravida. This factor, plus an immature personality structure in the adolescent parturient, might contribute toward the greater incidence of uterine inertia in this age group. Our analysis, as indicated in Table 4A, shows a significant increase in uterine inertia in the adolescent non-white population when compared to the adult non-white population. There is a greater occurrence of uterine inertia among the adolescent white group when compared to the adult white group, but the difference is not necessarily significant. There is a greater incidence of uterine inertia in the total non-white population as compared to its incidence in the total white population.

*Contracted Pelvis.* Sexual precocity in the human female is associated with an initial acceleration of somatic growth. The final growth achieved by the sexually precocious female is ordinarily less than the normal standard for the population. This is assumed to be the result of premature epiphyseal closure of the long bones associated with precocious sexual development.

It is quite apparent from the age distribution of this study that our adolescent pregnancy group would tend to contain those individuals whose sexual development was somewhat earlier than the average. Although not necessarily classified as sexually precocious, sexual maturation would undoubtedly be occurring at the earlier levels of established norms. It would follow from this that pelvic contraction could occur with a greater frequency

among the adolescent pregnancies than in the adult pregnancy group. Examination of our data, Table 4B, indicates a marked increase in contracted pelvis in the adolescent pregnancy group in both the white and non-white population.

It has been noted previously that contracted pelvis occur more frequently among the non-white than the white population. Our data corroborate this observation. Contracted pelvis in the adolescent non-white group occurs with a frequency approximating three times that of the white adolescent pregnancy group which is also about the same magnitude found in the adult population comparisons.

*Prolonged Labor.* Preceding data indicate a greater frequency of uterine inertia and contracted pelvis among the adolescent population. It is recognized that these are two of the major causes of prolonged labor. The data on prolonged labor are approached with the anticipation that the adolescent pregnancy group would have a greater incidence of prolonged labors than would the adult pregnancy group.

In this study, prolonged labor is defined as labor in excess of 20 hours. As indicated in Table 4C, there is a significant increase in the incidence of prolonged labor among the adolescent parturients whether in the white or non-white population. This was considered to support our previous deduction. The study further indicates an increased incidence of prolonged labor in the total non-white population as compared to the total white population.

*Placenta Previa.* It has been observed that placenta previa is a more frequent complication of pregnancy in the multiparous females than in the primigravida. In view of the weighting of the adoles-

cent pregnancies by primigravida, a lesser incidence of placenta previa would be expected in this group. The total incidence of placenta previa was found to approximate 0.5%. This is the generally accepted incidence of placenta previa in the United States.

The data in Table 4D support this conclusion in that the adolescent pregnancy group shows an incidence of placenta previa approximately one-tenth that of the adult mothers. This difference in incidence remains constant whether in the white or non-white population.

*Premature Separation of Placenta.* Premature separation of the placenta occurs with a greater frequency among those women in whom pregnancy is complicated by hypertension. The etiology of the hypertension may be pre-eclamptic, nephritic, or essential. Since hypertension is considered to occur with a greater frequency among populations with increasing age, except for the factor of pre-eclampsia, it could be predicted that premature separation of placenta would occur with lesser frequency among the adolescent than among the adult pregnancy group.

In referring to Table 4E, it becomes immediately apparent that there is a lesser incidence of premature separation of the placenta in the adolescent pregnancies. The numerical difference present in both the white and non-white groups is considered to be significant in the non-white group only. Though a difference exists in the white population, the difference is not necessarily significant.

*Pre-eclampsia.* Pre-eclamptic toxemia of pregnancy occurs with a predictable increase in frequency among the young primigravida. This should lead to an increase in pre-eclampsia in our adolescent

pregnancy group, since they are obviously young and also have a high incidence of primiparity. As indicated in Table 4F, the usual distribution of pre-eclampsia is corroborated. There is an increase in the rate of pre-eclamptic toxemia in the adolescent pregnancy whether in the white or non-white population. There is also an increased toxemia rate in the total non-white population as compared to the total white population. These data can be interpreted to support the axiomatic consideration indicating that pre-eclamptic toxemia of pregnancy is a disease of young primigravidae of low economic and social background.

*Cesarean Section.* The two most common indications for cesarean section are previous cesarean section and cephalopelvic disproportion. It has previously been established that contracted pelvis occurs with a greater frequency in the adolescent pregnancy group. There is a greater incidence of prolonged labor and uterine inertia in the adolescent group. It might be expected that cesarean section would occur with a greater frequency in the adolescent group than in the adult population.

This conclusion is not borne out by these data, see Table 4G. The reason probably being that previous cesarean section has a greater numerical importance as an indication for cesarean section than contracted pelvis, uterine inertia, or prolonged labor. It is quite obvious that as the patient ages she may enter into the category of adult pregnancies with a previously scarred uterus and with a continuing indication for cesarean section. This would tend to weight the adult pregnancies disproportionately due to the incidence of repeat cesarean sections. The lesser incidence of

premature separation of placenta and placenta previa in the adult groups would favor an increased cesarean section rate among the mature parturients.

#### SUMMARY

The reproductive behavior of adolescent females at the University of Maryland Hospital from 1950 through 1959 was reviewed. The data revealed an increased incidence of uterine inertia, contracted pelvis, prolonged labor, pre-eclampsia, and prematurity in the adolescent pregnancies. There was a lower incidence of placenta previa, premature separation of the placenta, cesarean section, and fetal anomalies in the adolescent pregnancy group.

Comparative studies of the non-white, white populations revealed a greater incidence in the non-white group of uterine inertia, contracted pelvis, premature separation of the placenta, prolonged labor, pre-eclamptic toxemia, cesarean section, prematurity, perinatal mortality, and multiple pregnancy. There was no significant difference in incidence of placenta previa, fetal anomaly, or abnormal presentation in the white or non-white population.

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1. ISRAEL, S. L., and WOUTERSZ, T. B.: Teen-Age Obstetrics. *Am. J. Obst. & Gynec.*, 85:659, 1963.

# A Controlled Study of Erythromycin in Acne Therapy

HARRY M. ROBINSON, JR., M.D.

STUDIES BY Robinson,<sup>1</sup> Sulzberger and Baer,<sup>2</sup> and Andrews<sup>3</sup> indicated that broad spectrum antibiotic therapy was of great value in the modern approach to the management of acne. These investigators demonstrated that certain orally administered antibiotic drugs were of value in the treatment of acne papules and pustules, but when these medications were discontinued, the lesions recurred. It was observed that a satisfactory result could be maintained in many patients by the continued administration of antibiotics at periodic intervals or by using small doses of the selected medication. Although the specific mode of action of these drugs in the treatment of acne has not been determined, Sulzberger<sup>2</sup> suggested that the beneficial effect could possibly be due to the action exerted against internal foci of infection rather than a direct action on the cutaneous lesions. It was the consensus of opinion that penicillin was of no value in the treatment of acne vulgaris.

The study conducted by Robinson<sup>1</sup> indicated that chloramphenicol, the tetracyclines, and erythromycin stearate were equally effective in the treatment of acne vulgaris. Penicillin, administered orally or by injection, was of no value in the treatment of acne vulgaris.

The following long-term study was conducted with erythromycin stearate, a

drug productive of few adverse reactions, to determine its effectiveness in the treatment of a large series of patients who had acne vulgaris, acne rosacea, or acne conglobata. This form of erythromycin has not been associated with toxic effects on the liver or other organs.

## Methods and Materials

*Patient selection:* The patients included in this study were examined and treated in the author's private practice and in the out-patient department dermatology clinic of University Hospital. Both white and negro patients were included. The age range was from 12 to 60 years. Except for acneiform eruptions, the 132 cases on which observations were completed, were in general good health.

The treatment periods range from three to ten months. Patients completing less than two months of treatment were not included in this series.

*The drug:* Erythromycin stearate was dispensed in 250 mg. coated tablets (Filmtab). Inositol Niacinate in 200 mg. capsules was used as a control to treat 30 patients included in this study. A previous investigation<sup>4</sup> had proved this drug to be ineffective and therefore it could be used as a satisfactory control.

*Dosage schedule of erythromycin stearate:* Treatment was initiated with a dose of 250 mg. of erythromycin stearate four times daily until improvement was noted. Patients who did not show satisfactory improvement or partial improvement after a period of four weeks were dropped from the study. Thirty patients who had

From the Division of Dermatology, Department of Medicine, School of Medicine University of Maryland, Baltimore. The erythromycin stearate used in this study was furnished as 250 mg. filmtabs by Dr. George Berryman of Abbott Laboratories, North Chicago, Illinois.

improved on treatment with erythromycin stearate after four weeks were given 200 mg. of inositol niacinate four times daily in place of the antibiotic. This was continued for four weeks and after relapses were noted in all of them, the erythromycin stearate treatment was resumed. Prior to antibiotic therapy, all patients included in this study had been treated with dietary restrictions, improved hygiene, and local applications of colloidal sulfur lotions. The local measures were continued throughout the period of antibiotic therapy.

### Results

Of the 66 patients with acne vulgaris, 42 were greatly improved, 16 partially improved, and 8 were not benefited. The degree of improvement was based on disappearance of pustules and papules, and the rapidity of response to institution of erythromycin stearate treatment. After four weeks, the dose was reduced and it was possible to maintain 20 of these patients in a state of remission with a single 250 mg. tablet of erythromycin stearate daily. Sixteen patients maintained improvement with a dose of 250 mg. of the antibiotic twice daily. In 14 patients it was possible to maintain improvement with alternating rest periods of two weeks and two weeks of erythromycin stearate. Although papules and pustules disappeared under treatment with this antibiotic, it was found to have no effect on the presence of comedones or excessive sebaceous secretion.

Of 41 patients with acne conglobata, 33 improved under treatment with erythromycin stearate as expected, the results were less striking than those obtained in acne vulgaris. Twenty-five of these patients were greatly improved, eight were partially improved, and eight were unimproved. It was not possible to

maintain improvement in any patient with a single 250 mg. tablet of erythromycin stearate daily, but 31 of this group maintained improvement on two tablets daily. Using the same scheme of alternating rest periods that was employed in the treatment of acne vulgaris patients, two of this group maintained improvement.

Gratifying results were obtained in the treatment of patients with acne rosacea. Eighteen of 25 patients were greatly improved and five were partially improved. Only two patients in this series were not benefited by the treatment. After a minimum of six months of continued treatment, ten patients maintained improvement on single daily dosage, nine on two tablets of erythromycin stearate daily, and four maintained improvement on alternating rest periods and periods of medication.

Adverse reactions were minimal. Two patients had severe diarrhea and were forced to discontinue treatment. Mild gastrointestinal disturbances were observed in six patients.

### Comment

While it is generally recognized that endocrine imbalance is basically responsible for the production of acne lesions, safe and effective measures for the correction of such dysfunctions have not been discovered. The factors which play a large part of the production and aggravation of acne lesions include infection, emotional stress, dietary indiscretion, and poor body hygiene. When all facts are taken into consideration, it is obvious that the treatment of acne must be specifically tailored for the individual. The role played by infection in production of acne pustules is not clearly understood. Becker<sup>5</sup> performed bacteriologic studies in 65 patients. He found a variety of organisms including hemolytic staphylo-

## Systematic Administration of Erythromycin Stearate in Acne

Manifestation	Severity	No. of patients	Greatly improved	Partially improved	Un-improved	Maintained improvement on 250 mg. daily	Maintained improvement on 250 mg. twice daily	Maintained improvement with alternating rest periods and periods of medication
Acne Vulgaris	Mild	20	15	3	2	10	5	3
	Moderate	23	15	6	2	9	5	7
	Severe	23	12	7	4	9	6	4
Acne Conglobata	Mild	5	3	1	1	0	4	0
	Moderate	11	7	1	3	0	7	1
	Severe	25	15	6	4	0	20	1
Acne Rosacea	Mild	5	4	1	0	2	2	1
	Moderate	15	11	3	1	6	5	3
	Severe	5	3	1	1	2	2	0

coccus albus, non-hemolytic staphlococcus albus, hemolytic staphylococcus aureus, non-hemolytic staphylococcus aureus, and a mixture of bacteria.

A clinical history and physical survey should be a part of the treatment routine. Good physician-patient rapport, improved hygiene, dietary restrictions, and other general measures are effective and should be instituted as the initial part of the regime in the management of acne.

Although topical therapy is necessary, the preparations usually applied to the skin surface do not produce dramatic improvement. In a recent study<sup>6</sup> using a large number of preparations under blind label, it was determined that creams and lotions which contained sulfur, resorcin, or a combination of the two with or without hydrocortisone were no more effective in many instances than the placebo alone.

In view of the fact that long continued antibiotic therapy is necessary to obtain and maintain a satisfactory result in the treatment of acne vulgaris, caution must be observed to avoid serious adverse reactions. In order to avoid destruction of

the normal flora of the intestinal tract and skin, rest periods of two weeks alternating with two weeks of antibiotic therapy have proved to be the most satisfactory method of treatment. Erythromycin stearate which has a low incidence of adverse reactions is a valuable drug in the treatment of acne, but it must be emphasized that it does not replace any of the standard methods in present day use. It should be intended as supplementary therapy.

The control drug in this study, inositol niacinate in a dose of 200 to 400 mg. four times daily proved to be ineffective in the treatment of acne vulgaris in 50 patients. In the initial study<sup>4</sup> no adverse reactions were recorded. For these two reasons this drug was considered to be ideal for use as a control. Thirty patients previously treated with this medication were subsequently given erythromycin stearate, 250 mg. four times daily. After improvement was observed, the antibiotic was discontinued and treatment with inositol niacinate resumed. After several weeks, relapses occurred in all 30 patients and when erythromycin stearate therapy

was resumed, improvement was prompt. This experiment in 30 patients proved conclusively that the erythromycin stearate was a valuable adjunct in the therapy of acne.

In previous studies, it was observed that antibiotic therapy was not curative in the treatment of acne but will produce partial to complete involution of lesions. When these drugs are discontinued, lesions will invariably recur and when readministered, the lesions will involute. By careful manipulation, it is possible to determine the maintenance dose required and this level should be obtained as soon as possible. Alternating rest periods with periods of medication is the most desirable scheme of treatment.

### Conclusions

The antibiotic drug, erythromycin stearate, is a valuable supplement in the management of acne vulgaris, acne conglobata, and acne rosacea. Although the value of such treatment is recognized, it does not replace radiation therapy, die-

tary measures, and proper local therapy. Long continued administration of antibiotic drugs without supervision and rest periods is not advisable. Improvement may be maintained in a large percentage of patients by the administration of small maintenance doses.

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# John James Audubon's Baltimore Physician Patrons

G. E. GIFFORD, JR., M.A., M.D.

JOHN JAMES AUDUBON came to Baltimore in 1833, soliciting subscriptions to his classic, *Birds of America*. In a letter dated October 11, he wrote, "I have some hopes of the Library of Baltimore and also of the College of Surgeons."<sup>1</sup> A postscript to the letter reads, "I have rose from my Dinner to Receive the Subscription of E. Geddings Esq<sup>r</sup> M.D. Baltimore."<sup>2</sup> At that time Dr. Eli Geddings (1799-1878) was Professor of Anatomy and Physiology (1831-1837) and Dean (1832-1834, 1836-1837) of the University of Maryland Medical School.<sup>3-9</sup> He started a quarterly journal, the *Baltimore Medical and Surgical Journal*, in 1833, which he changed to a monthly in 1834, giving it then the name *North American Archives of Medical and Surgical Sciences*. Volumes II and V of *Ornithological Biography*, the text accompanying Audubon's plates, list Geddings as a subscriber<sup>10</sup> and entries in Audubon's letters reveal their financial dealings.<sup>11</sup> Dr. Eli Geddings left his chair at the University of Maryland in 1837 and returned to his native Charleston, South Carolina. On the burning of Columbia at the close of the Civil War, Geddings' entire fine library, which had been sent there from Charleston for safety, was destroyed.<sup>8</sup> The Audubon folio must have been burned too; Geddings' descendants do not know of its existence.<sup>12</sup>

A colleague of Dr. Eli Geddings was Professor Jules Timoleon Ducatel (1796-1849)<sup>13-23</sup> who was described as an



Portrait of Eli Geddings, M.D., from an unattributed engraving in the Charleston Medical Journal and Review.

(Courtesy of Joseph I. Waring, M.D.)

"ardent and enthusiastic student of nature" and "ever ready to impart his knowledge to others."<sup>13</sup> His father, Edmund Ducatel, a celebrated Baltimore druggist, had been one of the Baltimore subscribers to Alexander Wilson's *American Ornithology*.<sup>24</sup> Dr. Ducatel was a Professor of Natural Philosophy in the Mechanics' Institute before he became Professor of Chemistry at the University of Maryland Medical School (1831-1837). Ducatel subscribed to the smaller edition of Audubon's *Birds of Amer-*

ica<sup>19, 25</sup> and according to an Audubon letter dated Charleston, S. C., October 25th, 1833, Dr. Ducatel gave Audubon the name of one of his medical students, Thomas Edmondson, Jr.<sup>26</sup>

SIR—

My Friend J. T. Ducatell writes me that it is your desire to receive from me, a memorandum explanatory of the manner in which the publication of my Work entitled "The Birds of America" is carried on; the price of this work, time of completion & etc. This I now will do with the more pleasure knowing that you are naturally yourself a student of Nature. "The Birds of America" will form 4 Folio Volumes each containing one hundred plates,—the last perhaps more? The whole is published in numbers each of 5 plates of which 5 or 6 or perhaps 7 numbers come out annually—the cost of each of these numbers is ten dollars payable on delivery of the same or when called for.—Persons subscribing at this time receive the four volumes  $\frac{1}{2}$  bound in Russia leather for which they have to disburse 200 dollars for the 20 numbers contained in it & 20 more for the price of the binding—the 2<sup>d</sup> volume will be finished in August or Sept<sup>r</sup> next and when *that* is delivered the same sum of 220 \$ will have to be paid—after this the subscriber will receive the Nos for the 3<sup>d</sup> Volume as they are forwarded from England and pay for them when askd—It will take in all probability Eight Years now to finish the Work from this state. The 2 first volumes contain Land birds—the 3<sup>d</sup> Water birds and the 4 birds of both classes to enable me to introduce all subsequent discoveries from after the finishing of the 3<sup>d</sup> volume—

One volume of letter press accompanies each vol of Illustrations and if paid for separately—the cost of each of these about 4 Dollars—

Believe me with great respect

Your very obt. Svt.

John J. Audubon

to Edmondson Esqr.

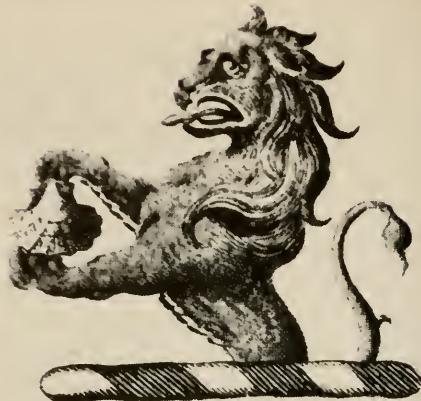
Baltimore

P.S. Should you please to honor me with your subscription to my Work, have the

goodness to write to me at this place care of Rev<sup>d</sup> John Bachman—

In 1834 Audubon returned to Baltimore, where in a letter of March 7 he wrote "I wish to make 5 or 6 drawings of Ducks here and will probably spend a month at this city."<sup>27</sup> Approximately one month later, in a letter April 5th he confessed, "I did next to nothing at Baltimore in the Bird-way—Drew only a Male canvas-back Duck—but I obtained a new subscriber—that was something!"<sup>28</sup> The next day he recorded in a letter, "Thomas Edmondson, Jr.—New Subscriber 1st V<sup>e</sup> 220.00."<sup>29</sup> Edmondson was listed as a subscriber in both Volumes II and V of the *Ornithological Biography*.<sup>10</sup>

Thomas Edmondson, Jr., M.D. (1808-1856)<sup>30-34</sup> was graduated from the University of Maryland School of Medicine in 1834, but never practiced his profession. Inheriting wealth, he became a patron of the arts and "with whom art collecting was more an obsession than a gentlemanly pursuit";<sup>31</sup> he owned eight cellos and fifteen violins, of which two were by Stradivarius and one by Guanarius. His home, "Harlem," was given to the city of Baltimore upon his death, and Edmondson Avenue in Baltimore is named for him.<sup>33</sup> Edmondson amassed a huge library including Audubon's *Birds of America* and *Quadrupeds of North America*. In his will<sup>35</sup> Edmondson left directions that his books and pictures were to be divided among the children, but at his death his collection was deposited in the Maryland Historical Society and dispersed by public sale in 1870. Item #351 in the catalog of Edmondson's library is Audubon's *Birds of America*. A copy of this catalog annotated by a Samuel I. Harper lists "Warren" as purchaser and the auc-



Thomas Edmondson Jr.

Book plate of Thomas Edmondson, Jr., M.D., in his set of Birds of America, now in the Cincinnati Public Library.

pioneer's copy lists "\$750.00" as the selling price.<sup>36</sup>

This "Warren" may have been a Cincinnati book dealer, Alfred Warren, "wholesale dealer in periodicals, newspapers, magazines and cheap publications,"<sup>37</sup> who acted as an agent for Joseph Longworth of Cincinnati. The Public Library of Cincinnati purchased the Audubon folio from Joseph Longworth for \$1,000.00 in 1870. Today the set is still in that library in the Rare Book Room, bearing the original 3½ x 2¾ book plate of Thomas Edmondson, Jr.<sup>37</sup>

Nathaniel Potter, M.D. (1770-1843)<sup>38-46</sup> was one of the founders of the University of Maryland School of Medicine and its Dean in 1812 and 1814. He occupied the chair of Medicine from 1807 to 1843 and is chiefly remembered today for his theories on the etiology of yellow fever and as sometime editor of the *Baltimore Medical and Philosophical*

*Lyceum*. None of the existing biographical material mentions his interest in natural history or ornithology, but he had been a contributor to the classic, *American Ornithology*<sup>47</sup> of Alexander Wilson. This includes a letter, "which as it contains some new and interesting facts, and several amusing incidents, illustrative of the character of the birds, I shall with pleasure lay before the reader." The letter was a description of the Cow-Bunting, today called the Cow bird. It begins, "I regret exceedingly that professional avocations have put it out of my power to have replied earlier to your favor of the 19th of September; and although I shall not now reflect all the light you desire, a faithful transcript from memoranda, noted at the moment of observation, may not be altogether uninteresting." Then follows a footnote with clinical overtones.

It may not be improper to remark here, that the appearance of this bird in Spring is sometimes looked for with anxiety by the farmers. If the horned cattle happened to be diseased in Spring, they ascribe it to worms, and consider the pursuit of the birds as an unerring indication of the necessity of medicine. Although this hypothesis of the worms infesting the cattle so as to produce much disease is problematical, their super abundance at this season cannot be denied. The larvae of several species are deposited in the vegetables when green, and the cattle are fed on them as fodder in winter. This furnishes the principal inducement for the birds to follow the cattle in Spring, when the aperient effects of the green grasses evacuate great numbers of worms. At this season the *Pecaris* often stuffs its crop with them till it can contain no more. There are several species, but the most numerous is a small white one similar to, if not the same as, the *Ascaris* of the human species.

Not only had Potter made memoranda and observed the birds' food habits, he

had offered, "a premium for the nest, and the Negroes in the neighborhood brought me a variety of nests; but they were always traced to some other bird."

Then follows a detailed account of the cow birds' nesting habits, song, and copulatory behavior. The letter ends,

This, sir, is the amount of my information on this subject, and is no more than a transcript from my notes made several years ago. For ten years past, since I have lived in this city, many of the impressions of nature have been effaced, and artificial ideas have occupied their places. The pleasure I formerly received in viewing and examining the objects of nature are, however, not entirely at your service. With the sincerest wishes for the success of your useful and arduous undertaking, I am, dear Sir, yours very respectfully, Nathaniel Potter.

Dr. Potter is not listed as a subscriber to Wilson's *American Ornithology*,<sup>48</sup> but he did subscribe to Audubon's *Birds of America*.<sup>49</sup> Entries in Audubon's letters indicate some financial difficulty on Potter's part.<sup>50</sup> Potter is not listed as a subscriber in the *Ornithological Biography*,<sup>51</sup> but in Ledger B of Audubon, now in the Audubon Museum, Henderson, Kentucky, there is the following entry, "103—Potter, Nathaniel—Baltimore, July 18th, 1835—C." The "C" means that the total subscription was completed;<sup>51</sup> however, as late as February 21, 1840, Audubon wrote "Dr. Potter is very ill and poor and yet I hope to get his note before I leave here."<sup>52</sup> Potter's set of the *Birds of America* is most likely the set in the Tilden Library, New York Public Library; on the reverse side of plate No. 66, plate CCCXVII in volume 4 there is a pencilled inscription, "Nos. 63, 64, 65, 66, for Nath<sup>l</sup> Potter, Esq. M.D."<sup>53</sup> Mr. Tilden acquired this set for his library in 1895. We know that Potter died in penury in 1843 and that most

likely his library was sold. The whereabouts of the set from Potter's purchase in 1835 to 1895, a 60-year span, remains unknown.

The last physician-naturalist patron of Audubon was Gideon B. Smith. An entomologist of sorts, he was graduated from the University of Maryland in 1840.<sup>54</sup> Dr. Smith became J. J. Audubon's agent in Baltimore and Audubon named a bird, Smith's Longspur, for him. The location of Dr. Smith's copy of Audubon's *Birds of America* is unknown, but an Audubon letter to G. B. Smith is part of the Thayer Collection of Audubonalia at Houghton Library, Harvard University.<sup>55</sup> It is of particular interest since there is a brief signed note by Dr. Smith at the bottom of it. The letter reads as follows:

Fort Union. M° 3 miles above  
the Yellow Stone River,

Lat. 47° 20' North

June 13th, 1843

MY DEAR FRIENDS,

We arrived safe and all well yesterday afternoon at this place, which is unlike anything I ever saw before. I cannot write you a long letter on a/c of the confusion and excitement at this moment around us. We are in the very midst of the Game Country. We saw yesterday no less than 22 Mountain Rams together, *scampering over the High Clay Hills* close to our Boat—we have made the quickest trip ever performed by man to this place, and that without touching a single snag or having scarcely an accident worthy of remark.

We intend leaving this place, on our way downward, on the 15th or 20th of August and proceed slowly to afford us all opportunities possible to collect what ever we can. As well as knowledges of things that we could not study from the deck of a steamer.

Pledge to write to Victor or John when you receive this, and pledge also remember me kindly to your good wife and



Smith's Longspur, Birds of America. Philadelphia and New York, J. J. Audubon, Volume VII, 1844, plate 487, p. 337.

daughter and my friend and believe me always yours sincerely,

J. J. AUDUBON  
Baltimore July 10, 1843

MY DEAR SIR,

I am sure you will accept my congratulations on the contents of the above welcome letter. I am getting about again but slowly. In haste for the mail.

Yours,  
GIDEON B. SMITH

The close relationship of natural science and medicine in the revolutionary era of America has been pointed out.<sup>56, 57</sup> This continued into the frontier stage as illustrated by the vast amount of ornithology done by Army physicians.<sup>58</sup> The patronage of Audubon by a group of Baltimore physician-naturalists indicates the ties between medicine and natural science in Baltimore in the early 1830's. Audubon summarized the situation well, "At Baltimore . . . my friends . . . Drs. Potter, Edmondson, Geddings and Du-catel greatly aided me in augmenting my list of subscribers . . . my very best acknowledgements are offered to these

gentlemen for their polite and kind attentions."<sup>59</sup>

#### Acknowledgments

I would like to acknowledge the assistance of the following: Yeatman Anderson III, Curator of Rare Books, the Public Library of Cincinnati; Elizabeth C. Litsinger, Head, Maryland Department, Enoch Pratt Free Library; Joseph I. Waring, M.D., Historical Library, Medical College of South Carolina; Alice Hester Rich, Assistant Librarian, Maryland Historical Society; Mrs. I. M. Robinson, Librarian, University of Maryland, Health Sciences Library; L. R. Newburn, Acting Librarian, Medical and Chirurgical Faculty of Maryland; William A. Jackson, Librarian, Houghton Library, Harvard University; Harold Merklen, Research Librarian, the New York Public Library; Charles R. Hall, Park Superintendent, Audubon Memorial State Park, Henderson, Kentucky; Professor Joseph Ewan, Tulane University; Mr. Waldemar H. Fries; and Mr. Richard H. Dickie.

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35. Edmondson's will dated 3 March 1853; probated 9 December 1856, Baltimore, Maryland.

36. The Maryland Historical Society has a copy of "Catalogue of a Splendid Collection of Books, Being the Private Library of the Late Thomas Edmondson, Jr., March 17, 18, 19, 1870," annotated by Samuel I. Harper. Page 13, after item 351, lists "Warren" as purchaser.

37. Communication of Yeatman Anderson, III, Curator of Rare Books, Cincinnati Public Library. The Public Library of Cincinnati has the four volumes of Audubon's *Birds of America*. Edmondson's book plate is in each of the four volumes. Edmondson's copies of the *Synopsis* and *Ornithological Biography* have been rebound, losing the bookplates.

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## MEDICAL SCHOOL SECTION

# Dean's LETTER

*Dear Members of the Faculty, Alumni, Students, and Friends of the Medical School:*

At the beginning of a new year it is appropriate to review the basic guide lines provided for the program of medical education at Maryland. Pertinent historical references are quoted below.

"An Act for providing a Medical College in the city or precincts of Baltimore for instruction of students in the different branches of medicine."—passed by the State Legislature at Annapolis on December 18, 1807, stated:

\* \* \* \* \*

"II—Be it enacted, by the General Assembly of Maryland, that a college for the promotion of medical knowledge, by the name of the College of Medicine of Maryland, be established in the city or precincts of Baltimore, upon the following fundamental principles, to wit: The said college shall be founded and maintained forever upon a most liberal plan, for the benefit of students of every country and every religious denomination, who shall be freely admitted to equal privileges and advantages of education, and to all the honors of the college, according to their merit, without requiring or enforcing any religious or civil test, or urging their attendance upon any particular plan of religious worship or service; nor shall any preference be given in choice of a president, professor, lecturer or other officer of the said college, on account of his particular religious profession, but regard shall be solely paid to his moral character, and other necessary qualifications to fill the place for which he shall be chosen."

\* \* \* \* \*

**Dean's Letter (Cont.)**

An Act for providing a University in the city or precincts of Baltimore, by the name of the University of Maryland, passed the Legislature at Annapolis on December 29, 1812. It stated:

\* \* \* \* \*

“1. Be it enacted by the General Assembly of Maryland, That the college for the promotion of medical knowledge, by the name of the College of Medicine of Maryland, be and the same is hereby authorized to constitute, appoint and annex to itself the other three colleges or faculties, viz.: The faculty of Divinity, the faculty of Law and the faculty of the Arts and Sciences; and that the four faculties or colleges, thus united, shall be, and they are hereby, constituted an University by the name and under the title of The University of Maryland.”

\* \* \* \* \*

The “Faculty Organization of the School of Medicine” as developed by the faculty and approved by the University Senate, the University President and the Board of Regents of the University in 1956 states that: “The aims of the School of Medicine are:

1. To select and educate students to be competent physicians of the highest character, fully conscious of their civic, social and professional responsibilities.
2. To advance medical knowledge by maintaining facilities for supporting medical research and fostering research by both faculty and students.
3. To provide medical educators for the future.
4. To conduct medical postgraduate and graduate education to assist physicians and ancillary professional and scientific personnel to improve their knowledge and skill.
5. To assist in public education on matters pertaining to health.
6. To advise the properly constituted authorities of the State of Maryland concerning matters affecting the health of its citizens.”

Sincerely,

WILLIAM S. STONE, M.D.

*Dean*

# Dean's Office Announces Promotions

A NUMBER of faculty members have recently received promotion in the School of Medicine.

DR. SHELDON E. GREISMAN has been promoted to the rank of Associate Professor in the Department of Medicine.

A native of New York City and a graduate of the New York University College of Medicine, Dr. Greisman served his internship and residency in internal medicine at the Bellevue Hospital in New York City. He was also an Instructor in Clinical Medicine at the New York University College of Medicine.

After postgraduate training in neuro-psychiatry and a period of Army service, he joined the School of Medicine in 1954 as an Instructor in Medicine. During the next year he was consultant in infectious diseases to Walter Reed Army Medical Center.

Dr. Greisman is a member of the American Board of Internal Medicine, Alpha Omega Alpha Society, the Society of Experimental Biology and Medicine, the American Federation for Clinical Research, and the American Society for Clinical Investigation.

His principal interests relate to the mechanism of fever in infectious diseases.

MARTIN IRWIN GOLD, M.D., has been promoted to the rank of Associate Professor in the Department of Anesthesiology. Dr. Gold also serves as associate anesthesiologist at the James Lawrence Kernal Hospital and at the Mount Wilson State Tuberculosis Hospital. He is also consultant in anesthesiology to the U.S. Public Health Service Hospital.

THOMAS ARNOLD GOOD, M.D., has been promoted from Assistant Research Pro-

fessor in Pediatrics to Associate Research Professor in Pediatrics. A member of the staff of the School of Medicine since 1958, Dr. Good was the recipient of the Ross Laboratories Pediatric Research Award, which cited particularly his studies of the interrelationship of the hypothesis and connective tissue biochemistry in collagen diseases.

JAMES A. LYON, JR., M.D., has been promoted from Assistant Professor of Radiology and Instructor in Pediatrics to Associate Professor of Radiology. He has been a member of the faculty at the University of Maryland since 1956, where he came following a year of graduate work and three years of residency in Radiology at the University of Pennsylvania Graduate School of Medicine and Hospital. Dr. Lyon will direct the School of X-ray Technology.

DR. MORITZ MICHAELIS, who received his Ph.D. from the University of Wurzburg and came to the University of Maryland from the Biochemical Institute in Stockholm, has been promoted to Associate Professor of Biochemical Research. Dr. Michaelis, the author of more than 40 papers, has also served at the Chemical and Medico-Chemical Institutes of Uppsala University in Sweden; the Cardiff City Mental Hospital in Great Britain; and McGill University in Montreal, Canada.

DR. JAMES EUGENE ROBINSON received his master's degree and doctorate from Washington University. After six years at Stamford Medical Center as research associate in radiology and lecturer in biophysics, he joined the faculty of the School of Medicine in 1961 as Assistant Professor in Radiology. Dr.

Robinson now heads a new section of radiation physics and radiobiology.

DONALD A. WOLFEL, M.D., radiologist, has been promoted to Associate Professor of Radiology in the School of Medicine. Since he joined the faculty in 1958, he has served as instructor and assistant professor. From 1953 to 1955 he served as medical officer in the U.S. Army. Dr. Wolfel's principal interest has been in vascular radiology.

### Dr. McCrumb Speaks Before Library Group

DR. FRED R. MCCRUMB, Director of the Institute of International Medicine, delivered an address entitled "International Health in American Foreign Policy," on the occasion of the 10th annual meeting of the medical library group of the Washington, D. C., area, which was held at the School of Medicine on October 26, 1963. The meeting coincided with the 150th anniversary of the founding of the first medical library at the School of Medicine and was arranged by Mrs. Ida M. Robinson, librarian of the Health Sciences Library.

DR. WILLIAM S. SPICER, JR., head of the Division for Pulmonary Diseases, has been appointed to the National Advisory Committee on Community Air Pollution, a body created in 1957 to advise the U. S. Surgeon General on Public Health Service policies, objectives, and accomplishments relating to air pollution.

In line with his interest in air pollution, Governor Tawes has also appointed Dr. Spicer to a five-member air pollution control council which was created in 1963 by an act of the Maryland legislature, the council being charged with maintaining a "reasonable degree of purity" of the air resources of the state.

DR. SAMUEL P. BESSMAN, Professor of Pediatric Research and Associate Professor of Biochemistry, participated in two panels at the first Pan-American Congress of Neurology, held in Lima, Peru, on October 21 to 25, 1963.

Dr. Bessman discussed the chemistry of hepatic coma and the chemistry of hereditary diseases.

DR. FRED R. MCCRUMB has been elected to membership in the American Epidemiological Society. Membership is conferred on those who have contributed at a high level to the general field of epidemiology.

DR. RAYMOND K. THOMPSON, Associate Professor of Neurological Surgery, has been elected President-Elect of the Neurosurgical Society of America.

DR. RAYMOND C. V. ROBINSON, of the Department of Dermatology in the School of Medicine, served as counselor to the Southern Medical Association, representing the State of Maryland.

DR. HARRY M. ROBINSON, JR., lectured at the St. Vincent's Symposium, in Worcester, Mass., in October, 1963. Dr. Robinson was also a guest of the West Virginia Academy of Dermatology at its meeting held in Wheeling, W. Va.

### Betatron Advances

THE NEW BETATRON, an intense radiation source, has been completed and installed in the new Martha V. Filbert Radiation Center at the University Hospital.

Fifteen times more powerful than the usual cobalt-60 source, the instrument is now being calibrated and put through an exacting and exhaustive series of tests. According to Dr. John M. Dennis, it is hoped that the facility will become available for cancer therapy early in 1964.

**Lectureships Consolidated**

THE SCHOOL OF MEDICINE is fortunate in being able to present a number of lectureships, the expenses of which are defrayed by dedicated funds. These include the Julius Friedenwald Memorial Lecture, the Phi Delta Epsilon Annual Lecture, the Uhlenhuth Memorial Lecture, the Pincoffs Lecture, and the Alice Messinger Band Memorial Lecture. Many of these have now been consolidated into a single program, copies of which can be obtained from the Dean's office in the School of Medicine.

It is hoped that the BULLETIN will be able to present the 1964-65 program well in advance. The importance of these lectureships cannot be overestimated. We are happy, therefore, to present the program for the second half of the academic year, beginning with the lecture on January 14, 1964. All the lectures will be held in the Gordon Wilson Hall of the University Hospital.

January 14

"Detection and Management of Mal-absorption Problems"

By DANIEL S. ELLIS, M.D.

*Clinical Associate in Medicine, Harvard Medical School*

February 11

"Cerebral Vascular Insufficiency"

By C. MILLER FISHER, M.D.

*Assistant Professor of Clinical Neurology, Harvard Medical School*

(The Uhlenhuth Memorial Lectures, sponsored by Phi Beta Pi Fraternity.)

March 3

"Pathogenesis of Nephritis with a Discussion of Management"

By DAVID P. EARLE, M.D.

*Professor of Medicine, Northwestern School of Medicine*

March 25

"Blood Coagulation and Thrombosis"

By OSCAR RATNOFF, M.D.

*Professor of Medicine, Western Reserve University School of Medicine (Alice Messinger Band Memorial Lecture)*

April 7

"The Current Status of Gastric Freezing"

By OWEN H. WANGENSTEEN, M.D.

*Professor and Chairman, Department of Surgery, University of Minnesota School of Medicine*

(The Phi Delta Epsilon Annual Lecture)

May 12

"Interferon: Current Status"

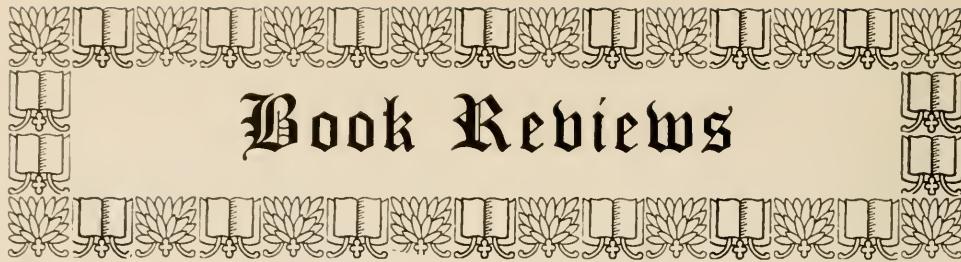
By ROBERT B. WARNER, M.D.

*Associate Professor of Microbiology, Johns Hopkins School of Medicine*

**Department of Dermatology**

DR. WILLIAM DUNSEATH and DR. HARRY M. ROBINSON, JR., have presented an exhibit entitled "A Statistical Study of the Chronic Cutaneous Lesions with Occlusive Dressing Techniques," at the recent meeting of the Southern Medical Association in New Orleans. At the same meeting, DR. EUGENE S. BERESTON read a paper entitled "The Sturges Weber Syndrome." DR. FRANCIS A. ELLIS, at the same time, served as a panelist on the Zola Cooper Panel Symposium.

Other members of the department have also been active. DR. RASKIN and DR. ROBINSON have completed the initial phase of a study on Tolnaftate, a very potent topical fungicide. The preliminary report is scheduled to appear in the *Journal of Investigative Dermatology* during the month of February, 1964.



# Book Reviews

**Anatomy. A Regional Study of Human Structure** by E. Gardner, D. J. Gray, and R. O'Rahilly. 1006 pp. 2nd edition. W. B. Saunders Co., Philadelphia, 1963. \$17.50.

The stated aims of this book are 1) to provide a textbook that is sufficiently brief for the undergraduate medical and dental student during the present shortened course in human anatomy, 2) to provide information on living anatomy and to stress the importance of the relationship between structure and function, and 3) particularly by the citation of relevant references, to meet the needs of the more advanced student and the postgraduate worker. The authors have certainly achieved these aims. This is undoubtedly one of the finer textbooks of human anatomy to appear in recent years. Its regional plan of organization suits the book well for use in the majority of laboratory courses of anatomy. Following the introductory chapters on General Anatomy, the various parts (regions) may be taken up in any desired order to suit a particular schedule of dissection. Although this book is shorter by several hundreds of pages than some of the older textbooks of anatomy, a wealth of information is included through the use of a double column format and by the setting of detailed descriptions and sections on surface anatomy in smaller type.

The draftsmanship in the line drawings is not of uniform high quality, but all of them adequately demonstrate the salient features of the region depicted and some portray 3-dimensional relationships in a clear, comprehensible fashion through the use of clever technique and ingenuity. The text figures are supplemented by a total of 67 well selected radiographic plates.

Beginning or advanced students of anatomy, alike, who wish to pursue certain areas of study in greater detail are supplied not only with lists of general references, but with footnoted references to special works numbering

30, 40, and 50 or more per chapter covering both classical and recent papers.

The widely adopted terminology of the *Nomina Anatomica* (1955) as amended in 1960 is used throughout and is anglicized wherever possible. The authors have wisely dropped the eponymous terminology which is less meaningful to the student than descriptive terms, although some of the more common eponyms are included in a special glossary.

The principal changes in this second edition are extensive revisions of the text and illustrative material. There are new illustrations and some have been modified and enlarged. A number of references have been deleted to make room for newer ones.

The authors are to be congratulated upon this fine new edition of their book—one which well merits a place among our current standard textbooks of human anatomy.

V. E. K.

**Illustrated Physiology** by Ann B. McNaught, M.D., Ph.D., Ch.D., Lecturer in Physiology, University of Glasgow, and Robert Callender, Medical Artist, Instructor of Physiology, University of Glasgow. The Williams and Wilkins Company, Baltimore, Md., 1963, pp. 287. \$6.75.

Designed as a visual aid for students in a university physiology course who lacked a background of mammalian anatomy, the authors have compiled an atlas composed essentially of profusely labeled, diagrammatic representations of important anatomical and anatomico-physiologic entities or pathways, principally mammalian.

While directed to the attention of the college student, the quality and excellency of the drawings and the profuse labeling provide an illustrated atlas of great diversity, making the book useful as a general reference for anyone interested in the biological sciences. The vol-

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ume might be particularly valuable as a desk reference for a busy practitioner who seeks to explain to a patient certain basic body structures and mechanisms with reference to the location of dysfunction or the disease. The book could well be a part of the working office library of any physician, regardless of his specialty. A useful and expanded index is appended.

J. A. W.

### Clinical Examinations in Neurology by

Members of the Sections of Neurology and of Physiology of the Mayo Clinic and Foundation, Rochester, Minn. 2nd ed. Pp. 296. W. B. Saunders Co., Philadelphia, Pa. 1963.

There are now a number of books available purporting to be guides to the clinical evaluation of the neurological patient. Far from being just another addition to this group, this manual makes a genuine contribution to medical literature. An adequate guide to the taking of a comprehensive neurologic history is included. In this section of the book discussions of common presenting symptoms and guides to their evaluation in the history are found.

Complete examination of cranial nerve function and a discussion of neuro-ophthalmology, including interesting sections on the differential diagnosis of nystagmus, may be found. Although the standard chapters on the examination of motor and sensory function are present, these chapters are outstanding for their clarity and completeness. Specific examination of the status of individual muscles and muscle groups is one of the many excellent features of this section. Tests of use in evaluation of pain in upper and lower extremities are handled in detail.

An area that is extremely confusing for most medical students, language and motor speech, is most lucidly discussed, with many concrete suggestions for the clinical evaluation of these functions.

Although discussions of chemical, radiological, and other laboratory aids to the diagnosis of neurologic disease are to be found in abundance, those sections of this book dealing with these subjects are remarkable for their conciseness, clarity, and completeness. A short chapter on the use of electroencephalography is to be found. Along with a presentation of electromyography, with a description of the

clinical usefulness and interpretation of electromyographs, nerve stimulation studies are summarized in one of the most outstanding chapters.

The anatomy and physiology of the nervous system of use in understanding the rationale behind the various examination procedures are included in each chapter of this manual. Liberal use of diagrams and charts further add to the unusual clarity of presentation found in *Clinical Examinations in Neurology*.

Although much of the information about the recording of results of a neurological examination pertains to the excellent printed forms in use at the Mayo Clinic, sample forms and sample tests are included with the book. These may serve to stimulate the development of like methods in other centers.

This manual is recommended without exception to advanced medical students and to house staff and all others interested in the rational approach to a complete neurological examination.

MARVIN N. GOLDSTEIN

### Human Histology by Leslie B. Arey. Pp. 338.

Illustrated. Second edition. W. B. Saunders Company, Philadelphia and London. 1963. \$7.50.

On opening this volume one is immediately impressed that it has two unique features. First, the presentation is in strict outline form. All the material is arranged under heads and subheads and presented in short crisp sentences with key words and phrases italicized for emphasis. Second, and even more unusual for a textbook of any type and particularly for a textbook of histology, is the lack of pictures. The illustrative material is arranged in a number of strategically placed plates and consists entirely of schematic line drawings. A single contrasting color is used to add clarity and to emphasize particular cells or parts of cells. These drawings, combined with a section at the end of the discussion of each organ or tissue which reviews its diagnostic features, are intended to enable the student to identify and study slide preparations. A short section devoted to function as it relates to structure is also presented at the end of each chapter.

The material included is complete and contains information derived from some of the newer techniques, such as electron microscopy, as well as from more conventional methods.

The style is clear and concise and the use of italics is a valuable aid to the reader. The limitations of the method of illustration which, as is evident from the Preface, are obvious to the author, do not seem to greatly limit the value of the text. Beginning students in human histology will find this a useful guide to the understanding of microscopic anatomy, and the more sophisticated will refer to it often when seeking answers to questions concerning normal structure.

HOWARD M. WISOTZKEY, M.D.

**The House Physician's Handbook**, 2nd ed., by C. Allan Birch, M.D., F.R.C.P. Pp. 204. The Williams and Wilkins Co., Baltimore, U. S. Agents. \$4.50.

This is a pocket manual, written as a guide to the medical and legal duties of a house physician. It includes concise, clearly written guides to clinical and laboratory, therapeutic and diagnostic procedures in routine use. Much information necessary to have at one's fingertips is presented, often by means of charts. Unusual for a book of this type are the cultured style and literary allusions found. A unique table of medically useful phrases in French, German, and Italian is also included. Although much of the general advice in the introductory section is down to earth and internationally useful, the legal information is applicable primarily to Britons.

The major portion of this book is obviously without geographical limitations and would be of great use especially to medical students and junior house staff members in any part of the world.

MARVIN N. GOLDSTEIN

**Aids to Clinical Pathology** by M. G. Rinsler, M.A., M.D. 3rd ed. Pp. 206. The Williams and Wilkins Co., Baltimore. 1963. \$3.50.

This is a new addition to the well-known Students' Aid Series. It is a pocket-sized, hard bound summary of the basic information necessary to the understanding of human pathological physiology and of the laboratory as an aid in the diagnosis of disease. The fields of infectious diseases, hematology, and clinical chemistry are lucidly reviewed, incorporating many of the recent advances in these areas. The 15 tables included greatly increase the clarity of presentation of this material. This volume would

appear to be a limited but useful addition to the medical student's bookshelf.

MARVIN N. GOLDSTEIN

**Diseases of the Skin**, 5th ed. by G. C. Andrews, M.D., F.A.C.P., and A. N. Domonkos, M.D., F.A.C.P. Pp. 749. W. B. Saunders Co., Philadelphia, Pa. 1963.

The authors indicate on the title page that their textbook is designed for practitioners and students. Cutaneous diseases are discussed in a concise, straightforward, and not too dogmatic manner. When possible, entities have been grouped as to etiologic factors such as various micro-organisms, metabolic or inherited factors. Other conditions are grouped with reference to type of tissue involved, *i.e.*, chapters on connective tissue, reticuloses, dermal tumors, etc. However, a chapter on tropical diseases, included in many dermatologic texts, is missing. Tropical diseases are well handled but disconnected under headings of Syphilis, Yaws and Pinta, Diseases Due to Animal Parasites, and Diseases Due to Bacterial Infections.

Chapters on anatomy, pathology, and allergy are probably not detailed and complete enough to be of great value to dermatology trainees or specialists. Nevertheless, there is ample new material included which makes the book valuable to those specializing in dermatology. Relatively recently described entities are presented. Some examples are the following: angiokeratoma corporis diffusum, phenylketonuria, malignant reticulemic erythroderma, cyclic neutropenia, alopecia mucinosa, Hartnup disease, and cytomegalic inclusion disease.

More detail on treatment is given than is probably necessary for the average practitioner and medical student. This is particularly true in chapters on radiation therapy, ionizing radiation, physical methods, and treatment of epitheliomata. The information serves as a guide for dermatologists and residents and enhances the value of the book even more for this group.

Latest therapeutic modalities are presented. Little space is wasted on outmoded methods. A few examples of the newer medications include: Griseofulvin in fungus infections, plastic occlusive dressing with local steroids in psoriasis, and 5-iodo-2-deoxyuridine in herpetic dendritic keratitis. Suggested use of systemic steroids in severe acne vulgaris, frowned upon by some dermatologists, is defended by the authors. The section concerned with dermatitis

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due to drugs has been up-dated. Older preparations such as Napharsen, Guauacum, and Santonin have been deleted. Among the additions to the list are methotrexate, Griseofulvin, and zirconium.

Photographs included in the textbook are excellent. Clinical pictures are often presented with photomicrographs of the lesions. Unfortunately, photographs are not used to the very best advantage because there is no reference to the figure in the printed text. In the case of pyoderma gangrenosum, pictures appear on the page preceding the discussion of the entity. More detailed legends could enhance the value of the already exceptional photographs. Pictures in the chapter on parasites are helpful for identification of vectors.

Most of the references listed in the bibliographies have been written in the past decade and many of them in the past five years. Thus the reader is directed to background material providing current concepts. Too frequently, however, references noted in the text are not included in the bibliography. A few examples are cited: Ellis on urticaria pigmentosa, Morris on pediculosis corporis, Barrack on molluscum contagiosum.

The book is printed on good quality paper. Double column format and appropriate use of bold type facilitate reading.

In general the authors have presented a book concerned with clinical dermatology. It is well written, contains new and current material, and is most useful to dermatologists, medical students, and other practitioners with a cursory interest in cutaneous diseases.

JOAN RASKIN, M.D.

**An Atlas of Electrocardiography** by Hugo Roesler, M.D., F.A.C.P., and Evan Fletcher, M.D., M.R.C.P. Pp. 700, with 400 fig. The Williams and Wilkins Co., Baltimore. U. S. Agents. 1963. \$28.00.

The senior author, Hugo Roesler, has made numerous significant contributions to the knowledge of cardiovascular diseases, perhaps epitomized in this volume. He died while the manuscript was being prepared for the publishers, the joint work being completed by the associate author.

More than an atlas, this volume adequately illustrates the authors' belief that a sound

knowledge of clinical electrocardiography is best acquired by the critical analysis of numerous tracings correlated with the clinical and pathological data. Grouped into the usual subdivisions, 400 electrocardiograms are presented with detailed discussions, consisting of a minute analysis of each tracing, the electrocardiographic interpretation, followed by the clinical data and, in 136 cases, the postmortem findings. A final paragraph correlates the preceding data and amplifies the interpretation of the tracings.

The presentation is clear and balanced throughout, physiologic concepts being emphasized in the interpretations. While the tracings are scalar, the vector approach is used for analysis of the ventricular complex. Considerable stress is placed upon terminal QRS abnormalities in myocardial infarction, with peri-infarction block being discussed in detail. The sections on occlusive coronary artery disease are extensive, in keeping with the importance of the subject. The more significant varieties of cardiac arrhythmias are illustrated, but the interchangeable usage of atrioventricular dissociation and complete atrioventricular block is needlessly confusing (Figs. 379 and 384). That unfortunate term, interference, is linked with atrioventricular dissociation (Fig. 389), but is not defined nor the circumstances of its employment explained in the text. Since the associated features of the clinical varieties of A-V dissociation can be described in simple terminology by an analysis of atrial impulses in relation to normal or abnormal states of refractoriness, the concept of interference is superfluous and better dropped from the literature.

The organization of the book is good and it is extremely well indexed. In a day when medical texts are often too heavy to lift, this 700-page book is surprisingly light. In achieving this laudable end, the publisher has occasionally sacrificed detail by reducing the size of the illustrations, as in Fig. 132 where notching of the P waves is barely visible. However, the fitting of the illustrations in close conjunction with the related text has added measurably to ready comprehension of the material.

This book will serve those best who already have some knowledge of electrocardiography and who prefer a "self-teaching" book. It should be in all departmental libraries.

MARVIN H. DAVIS, M.D.

# ABSTRACTS

of articles by  
faculty and alumni

**Immunological Studies with Group B Arthropod-borne Viruses. I. Broadened Neutralizing Antibody Spectrum Induced by Strain 17D Yellow Fever Vaccine in Subjects Previously Infected with Japanese Encephalitis Virus—**C. L. Wisseman, Jr., B. H. Sweet, M. Kitaoka, and T. Tamiya

*Amer. J. Trop. Med. & Hyg.* 11:550, 1962

The neutralizing antibody patterns evoked for selected Group B arthropod-borne viruses in response to inoculation with the living attenuated 17D yellow fever vaccine were compared in two groups of human subjects with the following characteristics: (1) subjects with no evidence of previous Group B arbor virus infection, and (2) subjects who had experienced primarily natural Japanese encephalitis virus infection some time prior to vaccination. The previous experience with JE virus did not alter the pattern of appearance of YF neutralizing antibodies, either in time of appearance or in height of antibody titer. Nor did the administration of the related YF virus significantly alter the level of JE neutralizing antibodies. However, subjects with prevaccination JE antibodies developed antibodies that neutralized chiefly dengue type 1 and West Nile viruses in response to the 17D strain inoculation, while subjects without prevaccination Group B arbor virus antibodies did not.

**Interaction of Rickettsiae and Phagocytic Host Cells. III. Opsongizing Antibodies in Human Subjects Infected with Virulent or Attenuated *Rickettsia prowazekii* or Inoculated with Killed Epidemic Typhus Vaccine—**C. L. Wisseman, Jr., J. R. Gould, and J. G. Wood

*J. Immunol.* 90:127, 1963

Infection of human subjects with virulent or attenuated (Strain E) *Rickettsia prowazekii* was followed within two weeks by the appearance of antibodies which would enhance phagocytosis of homologous rickettsiae by mouse peritoneal leukocytes. Although an injection of conventional killed epidemic typhus vaccine appeared to cause more rapid appearance of antibodies (by the end of 1 week), the titers attained at this time were low and, on the average, did not increase significantly in later

specimens. Serum from all groups also enhanced phagocytosis of *R. mooseri*, but for the most part these antibodies occurred in lower titers than the antibodies involved in the opsonization of *R. prowazekii*. The cross-reactions observed with the murine typhus antigen tended to be lower relative to the homologous reaction in the group which received the living attenuated (E strain) vaccine than in the other groups studied.

**Antibodies and Clinical Relapse of Murine Typhus Fever Following Early Chemotherapy—**C. L. Wisseman, Jr., W. H. Wood, Jr., A. R. Noriega, M. E. Jordan, and D. J. Rill

*Ann. Int. Med.* 57:743, 1962

Treatment with chloramphenicol was initiated early in the course of disease (two to four days after onset) in three cases of murine typhus fever acquired presumably through the respiratory route. Chemotherapy was discontinued 5, 8, and 10 days, respectively, after onset. Clinical relapse occurred promptly in each patient in less than two to about three days after the last dose of antibiotic. In each instance an array of anti-rickettsial antibodies was present at the onset of relapse.

The very short interval between withdrawal of drug and onset of relapse makes impractical for murine typhus the same simple interrupted schedule of chemotherapy that was developed earlier for scrub typhus. As an alternative, a regimen is proposed that might compensate for the stage of disease at which treatment is begun. This consists of daily administration of antibiotic, at least until the patient has been afebrile for 48 hours. Then daily therapy is continued until the total time elapsed from onset of disease is equal to about the mean duration of the untreated disease, that is, until about 12 to 14 days from onset.

The possible mechanisms by which clinical relapse can occur in the face of appreciable antibody levels are discussed. Among others, the possibility is presented of the participation of an immunopathological process in which hypersensitivity and antigen-antibody complexes contribute to the tissue damage in the later stages of the disease.

# The Laboratory Animal and New Drugs\*

JOHN C. KRANTZ, JR. and FREIDA G. RUDO

DISEASE is the arch enemy of mankind. It has limited and often curtailed his every activity from the time he dwelt in cliffs to his occupancy of a modern skyscraper. Man has ransacked the entire earth to achieve a surcease from pain and a victory over disease. The use of drugs has played an important role in this conflict. Their value in disease echoed out of the primeval jungle, when a savage applied the juice from a succulent leaf to an arrow wound of the flesh. And today the struggle goes on, unabated on all fronts in the laboratory and clinic in an effort to develop new drugs in the conquest of disease.

To illustrate the importance of drugs in the modern medical care program of America, the following facts are striking. The cost of the program is approximately 16 billion dollars annually. Of each dollar 25¢ goes for physician's services and 20¢ for drugs. The manufacture of drugs has become a three billion dollar industry. An avalanche of new drugs has descended upon the medical profession and laity of such magnitude that it affects every level of physiologic organization from cells to society.

The biologist observes that one of the greatest marks of distinction between man and other primates is that man speaks. Sir William Osler observed that another difference was that man liked to take drugs. Indeed taking drugs has become a favorite American pastime. Each day, along with a host of other drugs, the American public consumes 37

tons of aspirin and nearly one ton of phenobarbital. But why do people take drugs? Most people want to do what they want to do when they want to do it. Disease and its symptom of pain stand as a great obstruction in their pathway. People want to enjoy themselves unhampered by a headache, a stiff joint, or a feeling of lassitude. And they believe, and often times their belief is correct, that they can achieve relief and a greater degree of freedom to pursue their own desires by taking drugs.

Most of the drugs that were available to the medical profession up to a century ago were naturally occurring plants and minerals. Astute physicians achieved a remarkable degree of success in the treatment of the diseases of mankind by employing these natural products as medicines. Indeed some of these are still in current use and are very valuable medicaments. The English Dr. William Withering used digitalis, the leaves of the purple fox glove, in the treatment of dropsical conditions resulting from heart failure. He used it first on a few turkeys, then tried it on himself, and then on his distinguished patient Dr. Crawley. It was fortunate, indeed, that he did not poison himself or his patient. For without adequate testing on laboratory animals, it is extremely hazardous to give a drug to a human being. Withering was indeed fortunate to have been the discoverer of this valuable drug that is still our most generally used remedy in the treatment of heart failure. One hears his voice resounding down through the decades from 1776 to today declaring, "With this drug

\* A telecast over WMAR-TV, November 30, 1963—Medicine 1963, sponsored by the Baltimore City Medical Society.

we can regulate the pulse at will and to the salutary ends for our patients."

Another example of the use of drugs before the era of the laboratory was that of Dr. William T. G. Morton, a dentist, who used ether first as a general anesthetic. Dr. Charles Jackson, a chemist, gave Morton a sample of ether to rub on the gums of his patients in order to obtain dental pain. It was not satisfactory and Morton conceived of the idea of the inhalation of the agent, which he found produced unconsciousness and complete oblivion to pain. He tried it first in general surgery on a patient in the Massachusetts General Hospital on October 16, 1846. Dr. J. C. Warren looked up to the skeptical audience in the balcony and exclaimed, "Gentlemen, this is no humbug; Mr. Abbott is fast asleep." And the era of general anesthesia was established.

Medicine has tried always to extend the number of drugs used in the treatment of disease and increase their scope to treat and cure other diseases. During the last century the organic chemist has synthesized more than a million new chemical compounds. These are new creations of matter which have never existed on this planet before. Brilliant dyes, new plastics, new and effective insecticides, and new fabrics have been created. The implication is abundantly clear, that a new science was necessary to determine the action of these new substances on living systems, in order to ascertain whether or not they might be useful as drugs in the treatment of disease.

To meet this challenge, pharmacology, with its array of laboratory animals, became an established medical science at the turn of the century. So important in the development of new drugs is the laboratory animal that without these laboratory test objects progress in new drug

research would be absolutely halted. The pharmacologist uses mice, rats, rabbits, guinea pigs, cats, dogs, and monkeys to test new chemical compounds. In the use of these animals, he endeavors to ascertain the answers to two fundamental questions:

1. Does the compound produce a response on the animal that would be useful in the treatment of disease in man?

2. Can the compound be safely administered to man as a drug? Thus from his experiments with animals, the pharmacologist can determine the nature and the efficacy of the action of the compound and also its relative safety. And safety is so important, for all drugs have potential harmful effects and these must be determined and weighed against the beneficial or curative action of the drug.

But why does the pharmacologist use such a wide variety of animals? Through the years he has learned that there exists often a wide species variation between the action of a drug on one kind of animal and its action on an animal of another species. With several species of animals, the pharmacologist is able to obtain a more faithful prediction of what might be the expected action in man. For after the completion of all laboratory studies, the pharmacologist must extrapolate and project the action of the drug to man. This is difficult and requires skill and judgment that is acquired only after years of experience. Thus after completion of all the studies on the laboratory animals, the final approbation or disapprobation of the drug is determined in the clinic by careful observation on man afflicted with the disease on which the drug is indicated to have its effect.

The concept of a new drug stems from the minds of the pharmacologist and chemists. They must know the diseases of mankind and the availability of drugs

useful in their treatment or cure. Furthermore, it is a well-established fact that there is no drug in use today that could not be improved upon. Let us illustrate this principle by an example from the pharmacologic laboratory of the University of Maryland. Many of the generally used anesthetics present explosive and fire hazards. This is true of cyclopropane and ether. Such explosions have caused injury to many patients and others in the operating room. Indeed they may very often be fatal to the patient. About ten years ago, we decided that by synthesizing a new ether with fluorine in the molecule, we might diminish or even eliminate the explosive hazard. Accordingly, we prepared ether with 10 fluorine atoms in the molecule instead of 10 hydrogen atoms. Our prediction was correct: the new compound was completely devoid of the explosive hazard. Actually it was an excellent fire extinguisher. But what about its anesthetic properties? On mice, dogs, and monkeys this compound, known as perfluorodiethyl ether, showed no anesthetic properties. In fact, it was as inert as the nitrogen of air we breathe.

We decided immediately to prepare another ether, replacing only a portion of the hydrogen in the molecule with fluorine. This ether known now as Fluoromar (named after the University of Maryland) was found to exhibit little or no explosive hazard and also produced anesthesia in mice. Through a period of a year we studied this agent on the whole spectrum of laboratory animals. More than 200 anesthesias were conducted. Blood pressure, electrocardiograms, electroencephalograms, blood tests, liver function, and kidney function tests were performed. Surgical operations were performed on dogs to determine the degree of relaxation and freedom from pain produced by anesthesia with Fluoromar.

All of the tests met our expectations, indicating the possible use of Fluoromar as an anesthetic in man. In these tests of a new drug it is abundantly clear that the laboratory animal is indispensable.

Armed with the information obtained from the laboratory animal, ten years ago one of us (J. C. K.) anesthetized Dr. Max Sadove of the University of Illinois with Fluoromar for a period of 20 minutes. The anesthesia was smooth and the recovery uneventful. That same afternoon, Dr. Sadove, a distinguished anesthesiologist, anesthetized three patients requiring surgery with Fluoromar. Fluoromar became available as an anesthetic; it was followed by other fluorine-containing anesthetics such as Fluothane and methoxyflurane. It is now estimated that approximately 15 million patients have been anesthetized with these three fluorine-bearing anesthetics, with the fire and explosive hazard eliminated. Without the laboratory animal this progress would have been impossible.

Encouraged by this success we attempted to improve on the molecule of the anesthetic Fluoromar. Thus we increased the number of fluorine atoms in the molecule of Fluoromar from three to six. Much to our amazement this compound when tested on rats produced no anesthesia, but violent convulsions. Again one notes how fortunate it is that the laboratory animal is the gate through which a drug must pass before it is tested on man in the clinic. All species of laboratory animals that inhaled this new fluorinated ether, now called Indoklon, convulsed violently. The character of the convulsion resembled that produced by electroshock used in the treatment of mentally ill patients. For many months Indoklon was tested repeatedly on a large variety of laboratory animals. It never failed to produce a convulsive

seizure. Approximately 300 convulsions were evoked in laboratory animals and all available tests were conducted to determine whether or not the convulsive seizure produced a harmful effect on the animals. These tests revealed that the seizure produced no deleterious effects on the animals. Man was to be the next test subject.

Six years ago one of us (J. C. K.) administered Indoklon to four patients who were mentally ill and for whom electroshock was indicated. The laboratory animal results were duplicated in man. During the ensuing years about 3,000 mentally ill patients have received the treatment. It appears to enjoy a greater patient acceptance than electroshock and, in many cases where benefits from electroshock are not achieved, Indoklon has proved to be a valuable drug. Without the laboratory animal, standing as it were in the vanguard of progress, this treatment could not have been established.

Many types of cancer can readily be produced in the mouse and rat. The workers in this most urgent field of research test thousands of new compounds each year for their capacity to check cancerous growth and eradicate the disease. Some of these compounds showing promise of success in mouse and rat cancer are then tried on man suffering with cancer. Success in the laboratory animal in this most difficult field of research has not always been paralleled by a corresponding success in the treatment of human cancer. But certain strides have

been made, for example, methotrexate in the treatment of leukemia and nitrogen mustard and its derivatives in the treatment of solid tumors.

Certain laboratory animals, like the monkey, lend themselves well for the testing of new drugs that affect the behavior of man. Thus, tranquilizing drugs are tested on the Rhesus monkey. The monkey retains his jungle characteristics in captivity. He is *suspicious, antagonistic* and even *ferocious* when approached by man. A new drug, if it is to be valuable as a tranquilizer, will convert the jungle behavior pattern into one of docility and submissiveness. This is achieved without rendering the animal unconscious.

Let us examine for a moment the health record of the human race in which the discovery of new drugs and the laboratory animal have played a vital role. At the time of the Roman Empire the life expectancy at birth was about 25 years. When William McKinley sat in the White House it had increased to 42 years. When John F. Kennedy served as president, it had almost doubled, reaching the gratifying expectancy of 71 years.

Health, like democracy, can never be taken for granted. Eternal vigilance and persistent effort in research are necessary to add years to our lives and life to our years. The search for new drugs to achieve this end goes on at a stupendous pace, and in the vanguard of this progress stands man's faithful ally—the laboratory animal.



## **ALUMNI ASSOCIATION**

### **SECTION**

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## **President's Letter**

### *Fellow Medical Alumni:*

This year of office as President of your Medical Alumni Association is passing all too quickly. There seem to be so many aspects involved that one can not help but worry if he is doing all that is possible. The constant support and advice of Dr. William Triplett and Dr. John Wagner does make one's job easier to perform and the duties of the various committees are being executed in such an efficient manner that the President just can not express his gratitude too frequently.

The important event of this year is the combined meeting on May 8, 1964, of the Medical Alumni Association and the various hospital groups in surgery, medicine, obstetrics-gynecology and pediatrics. The committees involved in this undertaking have been working very diligently to insure its success as nothing less than outstanding. It is impossible to name them all, but please show your appreciation by rewarding their efforts with an enthusiastic and capacity attendance, and remember this includes your wives.

Plans likewise are going forward for a Faculty-Alumni Club for the Baltimore campus, and this will include all the professional schools. This is a very long range project in which Dr. Howard B. Mays has an intense interest as our representative. He was one of the originators of this venture, which we all hope will be brought to an early fruition. The club is a facility that is urgently needed, and I hope will insure closer cooperation between the Baltimore professional schools; so much more can be obtained through the combined efforts of these bodies.

Your treasurer, Dr. Howard Mays, has been most determined in his efforts to bring our Alumni files and record system to a high degree of accuracy. However, this requires the cooperation of each member of the

Medical Alumni Association. So please send to the office all available information which is necessary and important to help complete and keep up to date this pertinent data. Your officers and Board are anxious to keep improving your organization, so that each of you and the School of Medicine may be justly proud. But remember we need your sincere and earnest cooperation and constructive criticism to accomplish this goal.

At the present time our Medical School is in the forefront of progress—enlarging its properties and buildings, investigating and promulgating new trends in medical education and discovery. In this day and age it is necessary to advance in the ever widening horizon of new medical explorations and events, or fall by the wayside and be left behind in the rapidly flowing stream of medical progress.

However, there are moments when I must stop and reflect that our School, which has always had the reputation of preparing men and women to be good physicians, must not stop turning out the doctor who is well versed and trained in all aspects of medicine. I just can not appreciate the cold scientific doctor who has lost the human side of medical practice. To those who argue I say to consider the example given us in medicine's patron saint—Luke, the physician. Here is a man who is worthy of every effort to emulate—kind to all, be he Jew or Gentile, black or white, slave or freeman. He was well educated and cultured, trained in the Greek method to observe and evaluate in the most scientific manner possible, but above all a God-fearing practitioner of the art of medicine, highly receptive at all times to the needs of his patients. We should all pause to see how close each of us has come to the example set for us by Luke, the physician.

I am certain that all of you will be happy to know that Dr. Hugh R. Spencer, Emeritus Professor of Pathology, has been selected as the recipient of the Alumni Honor Award for 1964 and has accepted with sincere appreciation and in all humility. I assure you he most justly deserves this honor.

In closing, please remember May 8, 1964, the date for our big annual meeting. Right now, decide to attend by marking the date on your calendar and plan to bring your wife. If each of you Medical Alumni will do this, we will be assured of an unqualified success.

GIBSON J. WELLS, M.D.  
*President*

## Important Notice!

### Alumni Annual Meeting Date, May 8, 1964

#### Changed to Conform with Hospital Groups

IN A LETTER to all alumni, Dr. Edward F. Cotter, Chairman of the Joint Committee on Arrangements, announced that the annual meeting of the Medical Alumni Association will be held on Friday, May 8, 1964. Although early June has been the traditional meeting time for alumni, many have requested a change because of inconvenience with graduation activities and other medical meetings.

In 1964 the meeting will be held on the weekend of May 7-8-9 and will be slightly different since the Medical Alumni Association will join the departmental associations of the University Hospital, which this year will include programs in medicine, surgery, pediatrics, gynecology, and obstetrics. It is natural for the alumni to join with these departmental associations since there have been already numerous successful meetings of these organizations during the month of May, just preceding the annual Alumni Association meeting. Thus there will be papers and discussions of interest for everyone as the scientific proceedings will cover many different specialty groups. In addition to renewing friendships, alumni reunions will again be held for the so-called five-year classes as well as specialty meetings for the various groups of physicians who have served in the University Hospital.

While details of the program will reach each alumnus separately (and also in the April, 1963, issue of the BULLETIN) a preliminary program shows activities beginning on Thursday, May 7, in the hospitality room of the Lord Baltimore Hotel. The next day scientific meetings will begin, after a talk of general interest by a prominent speaker. Luncheon will be held at the Student Union Building, with a business meeting of the Medical Alumni Association following. Dining and dancing at the Alumni Banquet on the same evening will round out a happy and memorable day.

The departments of the medical school and hospital will have Open House and exhibits on May 9 and a small but interesting scientific meeting is being arranged as part of the 25th anniversary activity of the Class of 1939. Dr. Raymond M. Cunningham is chairman of this group. A day of interesting activities is being planned for the wives on Friday, May 8, through a committee headed by Mrs. James G. Arnold.

Remember, this year the Medical Alumni Association's annual meeting and the meeting of the clinical associations of the University Hospital will be held simultaneously from May 7 through May 9.

**Dr. Hugh R. Spencer**  
**Named Recipient of 1964**  
**Honor Award and Gold Key**



**Hugh R. Spencer, M.D.**

DR. HUGH R. SPENCER, Emeritus Professor of Pathology in the School of Medicine, has been named recipient of the Alumni Association Honor Award and Gold Key. A distinguished scholar, pathologist, teacher, and advisor, Dr. Spencer has materially influenced the careers of several generations of alumni of the School of Medicine. His contributions have been recorded in a previous issue of the BULLETIN of the School of Medicine (Vol. 41, No. 2-April, 1952).

Instead of redocumenting the accomplishments of this honored faculty member, the BULLETIN asked a member of the alumni, Dr. Dexter R. Reimann of the Class of 1939, to officially announce the nomination of Dr. Spencer. His article follows.

**HUGH R. SPENCER**  
**Honored Alumnus 1964**

— A Tribute—

By Dexter R. Reimann

We edify ourselves when we exalt men of great character, we dignify ourselves

when we honor men to whom honor is due, we magnify ourselves when we pay homage to the deserving. Is there one of us who will not feel rewarded this year when Dr. Hugh R. Spencer receives the 1964 Medical Alumni Association Honor Award and Gold Key?

The tenth day of May, 1888, was unlike other days in Jarrettsville, Md., because a baby, not yet named Hugh, was born to Rose Anna and Clayton A. Spencer. The days to follow were not the same either for Jarrettsville and the surrounding county, as swaddling gave way to stove-pipe pants, and baby became the growing boy, the hunter, and the archeologist in search of Indian relics.

Hunting, especially raccoon, and Indian lore survived as major interests of Dr. Spencer and, in fact, periodically, even in his professional days, pushed aside his fruitful interest in pathology. Many of his trainees remember with delight how refreshing his accounts were of cold nights ringing with bawls and chops of prize hounds, and how exciting his descriptions of the show-down fights

between hounds and coons. Others remember fondly his picturing of Indian camp sites and burial grounds and his excitement as he relived the thrill of discovery.

Through his boyhood, Dr. Spencer shared a happy family life with sister Mary and attended county schools. It was here, in the security of a good home, that the character which we admire began. A life close to the soil and nature encouraged its development.

As adolescence blended with adulthood, further education was sought at the Baltimore Medical College on North Howard Street. Here the doctor took shape, the doctor who was to serve the University so well for 46 years.

Dr. Spencer became an alumnus in 1910 and set a course which led him into a distinguished career in pathology.

With appreciative eye for beauty, charm, and character, Dr. Spencer pursued Lillian Elliott until she said "yes." They were married on July 6, 1912. In the years that followed, Mrs. Spencer did more than live up to her husband's expectation for by Dr. Spencer's own admission, she was the best housekeeper, best cook, best companion, and best all-around-girl living on this side of the sea and century.

World events were soon to involve the United States in war. Dr. Spencer was not hesitant in his response to his country's call, so by 1918 he was in France serving as a pathologist with the First Army.

Soon after Dr. Spencer's return from France he was made, in 1919, Professor of Pathology at the University of Maryland School of Medicine. In this position he won the admiration and friendship of his students and fellow faculty members. His devotion to medicine and the school did much to advance the stature of our

corner of the medical world. In the lean years of the twenties and thirties, his selfless labors contributed much not only to the school's survival but also toward raising the standards and reputation of our School of Medicine. On the Admissions Committee, he guarded the front door; as advisor to the dean, he helped keep our house in order; and as the good teacher he was, when students finished, he admonished them to do well by the school and her reputation.

From 1925 to 1950 the name of H. R. Spencer was to appear as author and medical leader in local and national journals. At home, where honor does not come easily, a greater distinction was won among all who knew him. To them he was unexcelled gentleman, teacher, friend, and loyal son of the University.

In 1956, after a career which deserves emulation, Dr. Spencer retired. On the occasion of his retirement, Spencer Day was arranged to do him honor and from shore to shore of this nation, from border to border, and from the Continent of Europe students and friends came to pay homage. Where travel was not possible, greetings were sent to wish him well and say thanks for your teaching and counsel.

Dr. Spencer's influence outlasted his career and continues to spread its light over medical students in many corners of the land. A measure of his kindness, wisdom, and medical knowledge now flow through his many trainees who teach in world famous schools to benefit future doctors of medicine.

Well should the present generation know upon whose shoulders they stand, and they should know that from Dr. Spencer's shoulders they get an inspiring view.

If greatness and fame should survive its own time, let the name of Spencer be repeated to future generations.

# As We Approach Our 50th Anniversary

IN ANOTHER YEAR, the BULLETIN will be 50 years old. As we approach this important milestone, a review of the past century during which this journal has recorded the history of the School of Medicine, and in part some of its scientific achievements, two elements will immediately become important and paramount. First will be the record of scientific achievement as it has compared to the stream of scientific development throughout the world. Next, it is our hope that the past half-century can again be re-created or epitomized, perhaps as an inspiration for the next half-century, during which we hope the BULLETIN will continue to prosper.

Help from Alumni who have graduated during the past half-century will be most valuable, particularly from the historic aspect which we hope to develop in some detail. To this end, photographs, properly identified if possible, will be most welcome as loans, or, if the donor desires, as a gift to the school. After their use in the BULLETIN, they will be given to the Dean's office for appropriate filing.

Alumni of the School of Medicine can contribute also by means of historical studies and by allowing us the use of important documents which have come their way.

Cooperation of each interested reader of the BULLETIN is respectfully solicited.

## The *Bulletin* Does Get Around

THIS CURRENT ISSUE of the BULLETIN numbers 2,900 copies. At first this does not appear to be an impressive press run. However, when compared to some of the

leading scientific journals of the country, a favorable comparison is noted.

The BULLETIN is not only distributed to alumni, but has a wide circulation in exchange, the library receiving valuable journals from throughout the world—approximately 600 such exchanges exist. In addition, numerous subscriptions to the BULLETIN are enjoyed by non-alumni subscribers.

The following table of comparison is interesting.

Journal	As of December 1962
BULLETIN, SCHOOL OF MEDICINE	2,900
<i>American Journal of Clinical Pathology</i>	7,273
<i>American Journal of Physical Medicine</i>	1,359
<i>American Journal of Tropical Medicine &amp; Hygiene</i>	2,563
<i>Angiology</i>	2,081
<i>Applied Microbiology</i>	4,116
<i>Gastroenterology</i>	4,888
<i>Journal of Bacteriology</i>	9,848
<i>Journal of Biological Chemistry</i>	6,151
<i>Journal of Histochemistry &amp; Cytochemistry</i>	2,257
<i>Journal of Immunology</i>	3,199
<i>Journal of Investigative Dermatology</i>	2,580
<i>Journal of Nervous &amp; Mental Diseases</i>	2,034
<i>Journal of Pharmacology &amp; Experimental Therapeutics</i>	2,433
<i>Journal of Trauma</i>	2,047
<i>Journal of Urology</i>	8,133
<i>Laboratory Investigation Medicine</i>	2,885
<i>Obstetrical &amp; Gynecological Survey</i>	3,841
<i>Pharmacological Reviews</i>	6,607
<i>Plastic &amp; Reconstructive Surgery</i>	2,409
<i>Stain Technology</i>	3,234
<i>Survey of Anesthesiology</i>	2,775
<i>Survey of Ophthalmology</i>	3,759
<i>Urological Survey</i>	1,850
	1,834

## Alumni Hold Meeting In New Orleans

ALUMNI of the School of Medicine were invited to a cocktail party and buffet at the Royal Orleans Hotel on the occasion of the annual meeting of the Southern Medical Association in New Orleans. The party was arranged by Joseph Schenthal of the Class of 1939.

Gilson Wells, President of the Medical Alumni Association, made a special trip for the occasion and gave an illustrated talk on the progress being made on the Baltimore campus.

The party enjoyed a New Orleans style buffet with wide variety of seafood prepared in the unique style of the area. A New Orleans "combo" entertained the group during the evening.

Those attending were:

DR. & MRS. L. C. DOBIHAL	'20
DR. & MRS. F. A. HOLDEN	'20
DR. GIBSON J. WELLS	'36
DR. & MRS. JOS. SCHENTHAL	'39
DR. & MRS. ROBERT SHELL	'48
DR. & MRS. MCGOOGAN	'42
DR. ELIZABETH SHERRILL	'41
DR. & MRS. R. C. V. ROBINSON	'40
DR. J. MORRIS REESE	'20
DR. EVA F. DODGE	'25
DR. JAMES A. KELLY	'39
DR. & MRS. CONRAD RICHTER	'40
DR. ARLIE MANSBERGER	'47
DR. LOUIS PRATT	'44
MR. MARVIN SAINTZ	'64

The next meeting of the Southern Medical Association will be held in Memphis, Tennessee, November 16-19, 1964. No doubt there will again be a Maryland alumni gathering of members of the Southern Medical Association and their friends.

## Lawrence F. Woolley Dies

DR. LAWRENCE F. WOOLLEY, who for many years served as clinical director of the Sheppard and Enoch Pratt Hospital, died in Brunswick, Ga., on October 15, 1963.

A native of Salt Lake City and an alumnus of the Johns Hopkins University School of Medicine, Dr. Woolley interned at the University of Maryland, to return to Baltimore at the Sheppard and Enoch Pratt Hospital, where he was appointed in 1932. During his tenure at the Sheppard and Enoch Pratt Hospital, he held an associate professorship in Psychiatry at the School of Medicine and was active in teaching during that period. In 1945 he moved to Atlanta, Ga., engaged in private practice, and served as a part-time instructor at Emory University.

## Student Loan Fund Needs Additional Growth

WHILE A STEADY FLOW of contributions to the Medical Alumni Student Loan Fund is acknowledged, the fund cannot completely meet the demand. It is urgent that interested Alumni contribute to this rotating fund, which will be perpetuated as the loans are repaid. Such donations, tax exempt, meet a very pressing need in the School of Medicine and are most appreciated by the students who benefit through this interest and Alumni generosity.

# Class

## NOTES

ELSEWHERE in this edition you will find a "tear out" page, for reporting Alumni News to the BULLETIN. This is not an idle gesture.

Your achievements, fellow alumnus, are of interest to your classmates. They constitute a reward to the faculty, are a challenge to the younger physicians, and are an item of prestige for the University. Please cooperate with us by forwarding news of yourself or any alumnus to the BULLETIN. Thank you.

### Class of 1916

**Harry Goldmann** has recently been appointed as part time assistant in Psychiatry at the School of Medicine.

At the 1963 meeting of the Academy of Psychosomatic Medicine held in San Francisco, Dr. Goldmann conducted a workshop on "Psychotherapy and Hypnosis in the Treatment of Obesity."

Dr. Goldmann recently changed his address to 7121 Park Heights Ave., in Baltimore.

### Class of 1929

**Jacob H. Conn** participated in the 1963 International Congress on Hypnosis held in New York on October 26. He presented a paper entitled "The Clinical Aspects of Consciousness in Relation to the Therapeutic Use of Hypnosis."

A past-president of the Society for Clinical and Experimental Hypnosis, Dr. Conn serves also as a staff member of The Johns Hopkins Hospital, The Seton Institute, and Sinai Hospital.

He has been re-elected President of the American Board of Medical Hypnosis and has been appointed U.S. delegate to the International Society for Clinical and Experimental Hypnosis.

### Class of 1931

**Mark B. Hollander** has announced the removal of his office for the practice of Dermatology to 836 Park Ave., Baltimore.

### Class of 1933

**Stephen Sewell** has been appointed chief of Gastroenterology at the Veterans Administration Hospital, Lyons, N. J. Dr. Sewell recently retired from private practice in Spring Lake, N. J.

### Class of 1937

**Eugene S. Bereston**, Associate Professor of Dermatology in the School of Medicine, was a member of the Allergy Panel at the annual meeting of the West Virginia State Medical Society in August, 1963.

### Class of 1938

**H. Leonard Warres** has announced the removal of his office for the practice of Diagnostic Radiology to 3502 W. Rogers Ave., in Baltimore.

### Class of 1944

**H. James Lambert, Jr.**, who for eight years has been active in the practice of Obstetrics and Gynecology at the Straub Clinic in Honolulu, has returned to the mainland and has become associated with Dr. James W. Ravenscroft in the practice of Obstetrics and Gynecology with offices at 2330 First Ave., San Diego, Calif.

### Class of 1945

The Very Reverend Edward Dhanis, rector of the Pontifical Gregorian University in Rome, has announced the appointment of **Dr. Frank J. Ayd, Jr.**, to the Theology faculty. Dr. Ayd will lecture on Psychiatry. He is the first American layman to teach at Gregorian University, which was founded as the Roman College in 1551 by St. Ignatius Loyola and St. Francis Borgia. It is the oldest pontifical University in Rome and has an international faculty and student body. Among its many departments are faculties of theology, philosophy, canon law, church history, and misseology and Institutes of Social Sciences, ascetical theology, and Latin literature. The majority of the students are priests and seminarians, numbering some 3,360 from all over the world.

### Class of 1951

**David Kipnis** has been named director of a pediatric unit established by Washington University in the St. Louis Children's Hospital as a part of the school clinical research center. The new unit is supported by funds from the National Institutes of Health. Dr. Kipnis serves as Associate Professor of Medicine at the Washington University School of Medicine in St. Louis.

### Class of 1954

**David Levy** is currently serving as a postdoctoral fellow in microbiology and medicine in the Division of Immunology at The Johns Hopkins Hospital. Dr. Levy was recently certified by the American Board of Internal Medicine.

**Joseph J. Noya** has been certified by the American Board of Surgery during the year 1963.

Dr. Noya, a member of the regular corps of the U. S. Public Health Service, formerly served as Deputy Chief of Surgery at the U. S. Public Service Hospital in New Orleans. At the same time he served as Clinical Instructor in Surgery at the LSU School of Medicine in New Orleans.

Dr. Noya has been recently promoted to Chief of Surgery at the U. S. Public Health Service Hospital in Detroit, Mich.

**Robert R. R. Roberts**, now on active duty with the U. S. Navy, is currently stationed at the U. S. Naval Hospital at Camp LeJeune, N. C.

**Robert Yim** of Lutherville, Md., reports that in addition to his regular practice of Pediatrics, he finds time to serve on the United Appeal Committee and is taking an active part in its work. He is also serving as a lecturer in Pediatrics at the School of Medicine and is active in his local medical society, where he serves as a committee member for the Pediatric Annual Seminar. He is Clinical Director of Child Hygiene for Baltimore City.

### Class of 1957

**William A. Simmons** has been discharged recently from military service after two years at the Key West Naval Hospital. Dr. Simmons is now in the private practice of Obstetrics and Gynecology with offices at 208 First National Bank Bldg., Canton 2, Ohio.

**Landon C. Stout, Jr.**, has been appointed Assistant Professor of Medicine at the University of Oklahoma Medical Center. Dr. Stout currently resides at 800 N. E. 13th St., Oklahoma City, Okla.

# Deaths

## Class of 1958

**Robert B. J. Mulvaney** was recently graduated from the School of Law of Fordham University, N. Y. At present Dr. Mulvaney is serving a legal clerkship with the firm of Steiner and Schapira in Newark, N. J. Dr. Mulvaney is also serving as physician to the Essex County, N. J., Penitentiary and is chairman of the Social Welfare Committee of the Essex County, N. J., Medical Society.

## Class of 1959

**William James Ross Dunseath** has entered a partnership with Dr. John Franklin Strahan in the practice of Dermatology, with offices at Suite 403 Latrobe Building, 2 E. Read St., in Baltimore.

**William E. Rhea** has been appointed chief resident at the Children's Hospital of the East Bay, Oakland, Calif. Dr. Rhea, who served his internship at the Providence Hospital in Washington, D. C., has served his entire residency at the California institution.

**Herbert Ribner**, who recently completed his training in Neurology, has been named instructor in Neurology at the New York Medical College. Dr. Ribner has also begun the private practice of Neurology.

## Class of 1961

**Robert A. Fink** was recently a visitor to the campus. Dr. Fink is now in his second clinical year in Neurosurgery at the University of Chicago Hospitals and Clinics. Dr. Fink plans a year of research before assuming duties as senior resident.

## Class of 1895

**John McMullen**, 5250 Watson St., N.W., Washington, D. C., for many years Assistant Surgeon General of the U. S. Public Health Service, died on April 28, 1963, at the age of 93.

## Class of 1896

**George Washington Mitchell** of 2 W. University Pkwy., Baltimore, died on May 22, 1963. Dr. Mitchell was 88.

## Class of 1903

**Charles R. Richardson** of Bel Air, Md., died February 15, 1963, at the age of 85.

## B. M. C. 1907

**Adolph Flachs** of 241 S. Arlington Ave., East Orange, N. J., died July 1, 1963, at the age of 78.

## P & S 1908

**Ernest E. Whipple** of 196 Hamilton Circle, Painted Post, N. Y., died on March 27, 1963. Dr. Whipple was 79.

## B. M. C. 1908

**J. Leroy Wright** of 612 Southmont Rd., Baltimore, died September 11, 1963.

## Class of 1908

**James K. Insley, Sr.**, of 3501 St. Paul St., Baltimore, died May 2, 1963. Dr. Insley was 77.

**B. M. C. 1909**

**John Henry Messler**, a general practitioner in Howard and Frederick counties for more than 53 years, died December 2, at the Vindabonne Nursing Home at Braddock Heights, after a short illness. He was 77.

A native of Carroll County, Dr. Messler has been in general practice in the Johnsville and Union Bridge area since 1910. During World War I he served as first lieutenant in the Army Medical Corps.

**B. M. C. 1910**

**Harrison A. Pruitt** of Anderson, S. C., died March 10, 1963. Dr. Pruitt was 75.

**William L. Stone** of 473 75th St., Brooklyn, N. Y., died on May 11, 1963. Dr. Stone was 80.

**B. M. C. 1911**

**Louis Adelard Perras** of 129 Ruth Ave., New Bedford, Mass., died on May 30, 1963, at the age of 76.

**Class of 1912**

**Abraham Schapiro** died in September, 1963. He was 72 years old.

A native of Philadelphia and a graduate of the Baltimore City College, Dr. Schapiro received his degree from the University of Maryland and then interned at the Sinai Hospital and later at the Epstein Tuberculosis Hospital.

**Class of 1915**

**Edgar W. Lane**, who for many years practiced in the Bloomsbury area near Philipsburg, N. J., died at the Morton Plant Hospital, Clearwater, Fla., on

November 30, 1963, following a heart attack.

Retired from active practice since 1952, Dr. Lane had made his home in Clearwater, Fla.

Following his graduation from the School of Medicine, he interned at the Baltimore City Hospitals and later served on the staff of the New Jersey Sanatorium for Chest Diseases. He then returned to the northern part of New Jersey where he served on the medical staff of the Warren Hospital, which in 1933 elected him chief of its medical staff. In 1952 he was named to the emeritus staff of the hospital. Dr. Lane was also active on the medical staffs of the Easton (Pa.) hospitals.

**Class of 1918**

**Joseph Lucien Brown** of 314 Turrentine Ave., Gadsden, Ala., died on July 2, 1963, at the age of 71.

**William B. Dalton** of 4217 Henderson Rd., Greensboro, N. C., died on October 18, 1963, following an operation for carcinoma of the throat.

**Sherman Balch Forbes** of 706 Franklin St., Tampa, Fla., died on June 25, 1963. Dr. Forbes was 68.

**Class of 1920**

**William F. Martin** of 225 Hawthorne Lane, Charlotte, N. C., died on April 18, 1963, at the age of 65.

**Class of 1922**

**H. Raymond Peters**, Professor of Clinical Medicine in the School of Medicine and prominent hematologist, died on June 11, 1963, at the age of 66.

Long active as a senior member of the medical staff at the Mercy Hospital, Dr.

Peters was widely known for his fine clinical studies during the early stages of the development of knowledge concerning erythroblastosis.

### Class of 1936

**Philip L. Franklin** of Gary, Ind., died recently.

### Class of 1938

**Leonard C. Molofsky** of 280 W. MacArthur Blvd., Oakland, Calif., died on April 30, 1963, at the age of 48.

**Alvan A. Welfeld** suffered a tragic death recently in a fire which consumed his garage at his summer home near Baltimore.

### Class of 1939

**Alvin Meyer** of 117 E. 37th St., in New York City died on July 8, 1963. Dr. Meyer was 47.

### Class of 1941

**Henry Robert Spinnler** of Butler, N. J., died June 4, 1963. Dr. Spinnler was 48.

### Class of 1929

**William Paul Dailey** of Harrisburg, Pa., died recently.

### Class of 1931

**W. O. Rehmeyer** of Ward County, Monahaus, Texas, died July 15, 1963.

### Class of 1934

**Isaac Gutman**, Associate in Orthopedic Surgery at the School of Medicine, died suddenly on November 29, 1963.

**Jacob Herbert Rabinowitz** of Newark, N. J., died on April 25, 1963, at the age of 54.

## ALUMNI NEWS REPORT

## TO THE BULLETIN:

I would like to report the following:

## SUGGESTIONS FOR NEWS ITEMS

## American Board Certification

### Change of Address

## Change of Office

### Residency Appointment

### Research Completed

### News of Another Alumnus

#### Academic Appointment

## Interesting Historic Photographs

Name \_\_\_\_\_

Address \_\_\_\_\_

## Class

Send to

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31 S. Greene St.  
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# BULLETIN *School of Medicine* *University of Maryland*

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# Psychogalvanic Skin Response Gustometry

STEVEN J. BORSANYI, M.D., JOSE QUINONES, B.S., and CYRUS L. BLANCHARD, M.D.

THE MEDICOLEGAL ASPECTS of ageusia require a testing method for the evaluation of the peripheral taste apparatus which is accurate and objective. Because of the recent upsurge in ear surgery, damage to the chorda tympani became rather common, but it is well tolerated by the majority of patients. However, occasionally the loss of taste following ear surgery is severely complained of and it is not unlikely that compensation might be sought for it through legal procedures in these suit-conscious days.

The chief nerves of taste are the chorda tympani which supplies the anterior two-thirds of the tongue and the glossopharyngeal nerve which supplies the posterior one-third. It is questionable whether taste fibers follow any other pathway besides the chorda tympani from the anterior portion of the tongue. The nerve most frequently indicated as an alternate pathway is the trigeminal nerve. However, this nerve according to present knowledge is thought of as a mediator of common sensibility (touch, pressure, and temperature) and it does not contain taste fibers. Cushing observed that removal of the Gasserian ganglion did not cause any permanent loss of taste.<sup>1</sup>

Widely varying results have been obtained by different investigators testing for taste finally with the establishment of the chorda tympani and the glossopharyngeal nerve as the main pathways for taste sensation, the only other cause

of disagreement being the technique of gustatory examination. The most common method of testing is the use of solutions which represent the four basic taste qualities. Two common errors found with the use of this method are: (1) the use of solutions of too high concentration. This may lead not only to an effect on the taste buds but also on the receptors of common sensibility of the tongue thereby affecting both the 5th and 7th cranial nerves. (2) The use of too much fluid for the examination. Chemical solutions diffuse rapidly throughout the mouth, making localized testing difficult.

Of agents other than chemical which are capable of evoking a sensation of taste, by far the most effective is the electrical current. The fact that passing an electric current through the tongue gives rise to taste sensation was demonstrated first by Volta in 1792. The current evokes an acid taste when the electrode on the tongue is the anode, and an alkaline taste when it is the cathode.

The first attempts of quantitative measurement of taste while passing a direct current through the tongue were made in 1955. However, the results were unreliable because the electrical circuits did not take into account the variable body resistance between electrodes. Krarup solved this problem by devising an apparatus which consists of a dry battery and a variable resistor and a potentiometer. By means of the potentiometer the voltage and therefore the amperage can be regulated. Krarup found in his series of 140 normal sub-

From the Division of Otolaryngology, School of Medicine, University of Maryland, Baltimore.



Fig. 1. The patient is ready for the test.

jects that only 2% could not recognize a stimulus of 300 microamperes. This stimulus is considered large enough to indicate total ageusia and at the same time small enough to prevent stimulation of the 5th nerve, since out of 55 patients with totally severed chordas only one had any sensation of taste below 300 microamperes.<sup>2, 3</sup>

In search for an objective way of testing taste the technique described above is being used by us in combination with the psychogalvanic skin response method (PGSR). The PGSR consists of a decrease in the electrical resistance of the skin to a wide variety of stimuli. It is an autonomic response mediated through changes in the secretory activity of the sweat glands in the skin. This reflex has been used successfully in physiology, psychology, etc., and is of particular interest to Otolaryngology in audiology<sup>4</sup> and olfactometry.<sup>5</sup>

**Method:** The subject under investigation is placed in a quiet room and blindfolded to eliminate extraneous stimuli. Then the PGSR recording leads are placed on the palmar surfaces of the second and fourth fingers of the left hand and the ground is attached to the arm. The PGSR shock electrodes are attached to the right forearm. The cathode of the gustometer is attached to the right wrist, the anode is held in the right hand, and placed on the tongue when the experiment starts (Fig. 1).

The gustometer is set to deliver a stimulus from 150 to 200 microamperes. This is considered above the threshold value for most of the normal population. The conditioning of the patient is carried out by giving taste and shock stimuli simultaneously approximately 10 to 12 times during a period of one minute. Then taste stimulus is given alone. If a positive response is obtained, it is car-

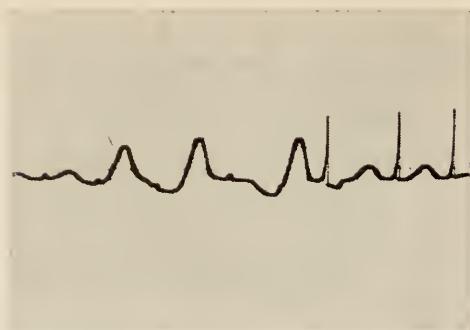


Fig. 2. Positive tracing.

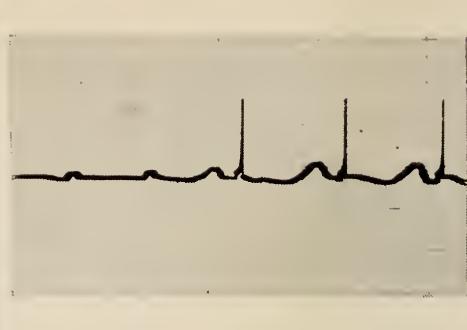


Fig. 3. Negative tracing.

ried to extinction then reinforced. If no response is obtained, the taste stimulus is increased to maximum and the test repeated.

To rule out the possibility that the positive PGSR responses were actually artefacts caused by the stimulating direct current from the gustometer, the latencies of the artefacts were measured by computer averaging method. We found that it took 200 milliseconds for the taste stimulating current to travel from the tongue to the recording leads of the PGSR machine. On the other hand, the average latencies of the PGSR responses were in the 800 to 1500 millisecond range, thus ruling out the possibility of the stimulus artefacts interfering with the PGSR response.

Fig. 2 illustrates a positive response. The first part of the tracing represents conditioning (a) followed by the taste stimulating current's artefact (b) and by a positive PGSR response (c).

The next illustration (Fig. 3) is a record of a negative PGSR response. The conditioning part of the tracing (a) is followed by two taste stimulus artefacts (b) but no PGSR response.

Twelve patients with severed chordas due to radical mastoid operation were tested in this series. None of the patients in this group gave positive PGSR

response to galvanic taste stimulation within a period of 3 months following surgery. The control group consisted of six normal subjects. The presence of taste was readily determined in all of the subjects from the control group with PGSR electrogustometric method.

The main purpose of this preliminary report is to focus attention on this new method for testing taste. We feel that PGSR electrogustometry is a reliable method and may be of value in the field of Otoneurology for the objective assessment of the function of the chorda tympani and in some cases, indirectly, of the facial nerve.

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# Puberty and Gynecology in the Cuna Indians

MAJOR ARCHIBALD W. McFADDEN, M.C., U.S.A.

## Traditional Medical and Ceremonial Practices of the San Blas Cunas of Panama

THE BELIEFS AND RITUALS centering on the female in this primitive society are an important part of their folk medicine. This elaborate unscientific medical system, firmly rooted in their ancient religion, remains the closely guarded knowledge of their medical practitioners. The tribal life of these people, somewhat altered during the past 450 years of European predominance in Panama, is now rapidly changing under the impact of modern civilization. Their indigenous system of medicine is also beginning to crumble; however, conservatism, isolation, and limited medical facilities have prevented scientific medicine from replacing traditional practices.

Their concepts of creation and human reproduction arise from the heart of the ancient Cuna religion, which Keeler<sup>1</sup> considers a form of the once universal Earthmother religion. The most sacred ceremony is the Inna feast for the newly marriageable female, which symbolically relates the events of conception, fetal development, and childbirth. Their traditional lore is transmitted by lengthy chants sung in an obscure symbolic vocabulary, which only the priests and healers fully understand.

This system, which incorporates elements of religion, sympathetic magic, superstition, and sound practical therapy, presents some curious parallels to mod-

ern medical practice. An investigation of Cuna medical lore indicated that the area of obstetrics, gynecology, and puberty rites was the least modified and probably the best example of their medical heritage. Therefore, this account of contemporary Cuna Indian medicine and ceremonies is presented as a fragment of an ancient American culture surviving into the twentieth century.

### STUDY METHODS

This account is based on information collected from medicine men, diviners, and chanters with the assistance of several educated native missionaries. With a letter of permission from the Panamanian Government and the cooperation of several prominent chiefs, I visited most of the San Blas villages with a traveling medical clinic between 1959 and 1961. During these trips, I was able to observe the ceremonies described in this paper. Olowitimappi, a respected medicine man from Mulatuppu, San Blas, came to my quarters in the Canal Zone to spend ten days teaching uses of herbal remedies, therapeutic chants, and medicine drawings.

The publications of Nordenskiold,<sup>2</sup> Keeler,<sup>3</sup> and Stout<sup>4</sup> supplied detailed information on Cuna history and culture. In spite of the distortions and omissions, which resulted from the difficulties of translation and the reluctance of the medicine men to divulge sacred knowledge, this account is considered reasonably accurate. The information in draft form was sent to Saikla Ikwaniktipippi, First Chief of Ailigandi and the leading

Chief of Dermatology Section, Medical Service, U. S. Army Hospital, Fort Jackson, S. C.

authority on Cuna traditional lore, for his approval.

THE CUNA INDIANS OF SAN BLAS

The Cuna Indians are descendants of the people who dominated a large area of Panama and Colombia prior to the Spanish Conquest. Today, they are concentrated in small villages along the Caribbean Coast, east of the Panama Canal. This region, known as the San Blas Coast after a prominent point of land and mountain range, has remarkable natural beauty. A multitude of coral islands are strung in chains among the off-shore reefs. The brilliant greens and blues of the almost transparent Caribbean contrast with the white beaches and coconut palms of the islands. On the mainland, the dense jungle, rising quickly from the narrow coastal plain into the mountains, is broken only by scattered clearings. This country, in the shadow of the Panama Canal, with no roads, few trails, and limited trade, has remained almost unchanged since the time of Columbus.

The Cuna Indians follow their traditional way of life, governed under a form of town council with elected village chiefs. They have preserved their tribal identity, language, and a great part of their ancient culture through a strict policy of isolation from foreign influences. They depend on farming small fields by the primitive "slash-and-burn" method, fishing, and hunting for their main food supply. They raise coconuts and avocados for sale to coastal trading boats and receive money, cloth, tools, and sugar in return. Many of the young men work in the cities and the Canal Zone for several years before settling down in their home villages.

The typical island village is small,

densely populated with little open space except the beaches, and located close to a little river on the mainland. Their large cane and thatch houses are built close together along streets; each house shelters several generations related along maternal lines; however, the eldest male is the head of the household.

MEDICAL CONCEPTS AND PRACTITIONERS

In the Cuna system of medicine, disease is caused by evil spirits attacking the patient's soul. A host of supernatural creatures, evil spirits, and demons of disease, many with animal form and attributes, wait in the darkness of night or in giant trees and rocks to prey on humans. These demons vary widely in appearance and evil power; some are tiny like gnats with little influence; the worst are hideous monsters with unlimited capacity for evil.

The total soul of man is composed of many individual souls, each belonging to a separate region of the body, and each subject to injury from different demons. A serious illness develops when demons steal the total soul and carry it deep into the eight levels of the underworld. Unless the medicine man can locate the captive soul and compel the demon to restore it, the patient will die. Lesser illness and chronic disease result from injury or theft of individual souls. Even though many common diseases are recognized and named, each symptom is attributed to a specific evil spirit. Certain diseases are considered to have both a natural and a supernatural causation.

The medical practitioners function in the role of priest-physician. There is considerable specialization within this system, which is based primarily on knowledge and confers a distinctive title on the practitioner.

*The Nele* (diviner) is born with supernatural powers to sent his soul into the underworlds to speak with demons and devils and to see into the past and the future. As a diagnostician, he may be consulted in difficult cases; however, therapy is reserved for the medicine man. All other practitioners learn their trade during many years of apprenticeship and study.

*The Kantule*, high priest and chanter, manages the ceremonial *Inna* celebration. He sings the sacred chants of reproduction and development for the "coming out" party. These chants and rituals protect the new debutante from various harmful influences. He does not practice medicine unless he also is trained as a medicine man.

*The Inatulet* (medicine man), general practitioner or specialist, studies under several experienced inatulets for eight to twelve years. He frequently takes special training in diseases of the female, but does not limit his practice. He treats the patient with various medicinal tonics, baths, and therapeutic chants with incense. He relies on the *nele* for the diagnosis and treatment of choice in difficult and puzzling cases. His knowledge can be learned without supernatural abilities.

Much of the knowledge and functions of the *inatulet* can be only vaguely fitted into the structure of modern medicine under the categories of public health and social work. There are numerous regimens with therapeutic tonics, baths, and chants which will enlarge a girl's natural abilities as a hammock weaver, seamstress, and other skills which will make her a better wife. Certain treatments are intended to increase feminine modesty or curb a tendency to sexual experimentation outside of marriage.

#### PUBERTY CEREMONY

Menarche is observed with a ceremony of seclusion and purification. This puberty rite was instituted by the great cultural hero, Ipeorkun, according to Cuna legends.<sup>1, 2</sup> It is a time of celebration without ritual dancing or chanting. The proud parents hold "open house" and serve a sweetened cacao bean drink to friends who visit to offer congratulations. Only the "saptur ritual" is sacred and forbidden to outsiders.

At the onset of the first menses, the parents notify their neighbors and the town chiefs. The young men prepare a palm leaf enclosure around a low platform on the floor of the family house. The girl remains seated on the platform, accompanied by village matrons and midwives, for five day of ritual bathing. These women, "who know the way of bathing the maiden," assisted by friends, pour sea water from a canoe over her nude body during the day. She is allowed food and drink only after dark. In some villages the young men participate in this ritual cleansing; probably a survival of an older tradition.

During this seclusion, the girl is instructed in proper behavior and the importance of her new status. She also receives some information of the secrets of menstruation, but no detailed instruction in sexual activity or her role in reproduction.

On the fifth day, the girl's whole body is stained a deep black with the juice of the sacred "saptur," the fruit of *Genipa Americana*. The juice stains the stratum corneum and requires about 10 days to wear off. This stain, in addition to marking the girl's new status as a young woman (*yakwa*), is also a potent protection against the demons of disease. The ceremonial painting completes the

puberty celebration; it is a public announcement of the close of childhood. The young woman will usually be married in three or four years.

*The Saptur Ritual:* The sacred fruit is collected in the mountains by a certain official, "one who knows the way of the saptur," with specified chants and cacao bean incense. He sings of the origin of the saptur and assisted by incense he informs the plant spirit of his intentions. He then climbs the tree in a circular manner and gathers fruit from each of the four cardinal directions. Since this is the only time that saptur can be picked, and it is an important ingredient of medicines and cosmetics, a large supply must be collected. The fruit is carried back to the island by the young men of the village with shouting and singing. A modern introduction is a shotgun blast, which warns the people not to look at the saptur being carried to the girl's house. At the house this official cuts four saptur fruit in half without looking by a single blow of a machete. This most sacred part of the ritual is barred to all outsiders and to those Indians who have abandoned the ancient ways.

*Omens:* Omens can be read in the character of the cut fruit. Unequal sections, depending on whether to right or left, may foretell an early death or marital discord. The presence of black specks or strings indicates a lack of modesty or premarital sexual activities. The girl's future in marriage may read in the behavior of a female and male land crab placed together in a basket. An aggressive male crab foretells a brave and dominant husband, while a vigorous female foretells a disagreeable, unhappy wife. One crab escaping from the basket indicates unfaithfulness, and the death of a crab foretells the death of husband or wife. These crabs are watched for seven



Fig. 1. Squeezing sugar cane for the Inna Ceremony in Ailigandi, San Blas. Notice the pre-adolescent girls with long hair and gold nose rings. They are wearing the traditional bright-colored applique "mola" blouses.

days, and predictions are made on the basis of one year of marriage for each day. These omens and many others are more important than just amusing superstitions; however, no clear distinction was evident between genuine divination techniques and humorous, trivial customs.

#### THE INNA CEREMONY

These ceremonies are the most sacred surviving observances of the Cuna religion. The details of these rituals, also attributed to Ipeorkun, have been transmitted by oral tradition through the centuries. These ceremonies consecrate the female child to her future role in motherhood and supply her protection against disease and other hazards. They are a form of fertility rite, and symbolically ensure the survival of the Cuna Indians as a people. The complex ceremonies relate through lengthy chants, dances, and pantomime the sacred mysteries of creation and the origins of the race. The senior kantule (high priest) manages the entire ceremony; he sings the almost interminable sacred chants, assisted by associate kantules and other officials. Every Indian girl must have an Inna feast to be eligible for marriage.

*The Long Inna:* The Long Inna (Inna Suit) is an elaborate ceremony lasting four days. The girl may be any age between three and nine, but the average age is seven years. Men take the major role in these proceedings, which are held in a large inna hall reserved for these feasts. The opening phase is the ritual Inna tasting by four village elders and the tobacco smoke incense offered to each man in turn. After several hours, the high priest begins the sacred chants which will continue almost continually night and day for three days. The program is broken at intervals by ritual dances, pantomime, and music by "pan pipes," flutes, and rattles. As he sings for hour after hour, the men and women drink Inna and smoke native tobacco to a state of intoxication.

The girl stays in her hammock surrounded by a palm leaf screen, in a corner of the hall, until the morning of the fourth day. She then goes to a previously prepared palm leaf shelter in the street near the inna hall. There she sits in a pit surrounded by matrons and friends and receives a ritual hair cut from an older woman, "one who knows the way of cutting the maiden's hair." The result is a very close crew cut. She is finally given a secret and holy name by the high priest, and then she returns to her family house. The Inna feast continues usually for another 12 hours.

*The Inna Chants:* The sacred Inna chants describe in flowery language the development of the girl from her conception to her future role as a mother. The entire process of reproduction is related in detail, but the obscure symbolic vocabulary conceals the meaning from the general public. The high priest chants against the many evil influences which threatened the girl in the past and lurk to harm her and her pregnancies in the

future. Indian informants say that the Inna tells the whole story of the girl's life. This is true; however, since the story begins with the origin of man following the Great Flood, the Inna ritual actually recounts the history of mankind.

*The Inna Drink:* Inna, the alcoholic drink which gives its name to the ceremony, and tobacco are the two essential ingredients of the Inna feast. Inna is made from ground parched corn, ripe bananas, and sugar-cane juice fermented and then boiled. The result resembles a dark ale or stout in taste and appearance. An important secondary official is "one who knows the way of making Inna" or the master brewer. Both men and women drink large amounts of Inna because they believe it necessary to get drunk at Inna feasts to ensure going to "heaven" after death. In the obscure and symbolic language of the Cuna chants, one of the names for a human being is "one who possesses Inna." This usage indicates both the sacred nature of the drink and mankind's unique status in possessing it.

*Inna Variations:* Economic factors cause some variations in the number and variety of Inna feasts in different villages. The required food and drink is quite expensive, and a father often works several years to accumulate the money and supplies. In villages where these feasts are a cooperative effort, the Long Inna is common. Several variations of the Inna are mentioned for completeness. *Inna Tunsikalet* lasts about a day and a half, and may be substituted for the Long Inna. *Inna Totowalet* is a rare variation in which every activity is danced in a specified ritual pattern. This ceremony is quite complex and is not often performed today.

*Coming Out Party:* The one day Inna feast (Inna Mutiket) is ordinarily held for a girl of 13 years. The ceremony is

essentially an abbreviated Long *Inna* feast, and is the girl's "coming out" party. She does not receive a ritual hair cutting unless she had not been given an *Inna* earlier. Usually her mother cuts her hair to the short adult style a few weeks after the second *Inna*, and the girl adopts the tribal head scarf. She is commonly married at 14 or 15 years of age.

#### SEX MORES AND MARRIAGE

Children of both sexes are carefully shielded from any knowledge of the reproductive process. It is difficult to believe in the complete ignorance of young people in sexual matters since the large open houses shelter several generations, including many married couples. The village is so tightly organized and the houses are so situated that privacy is achieved only through custom and Indian courtesy. The young people have abundant opportunities to see and hear all possible human activities.

The modesty of the Cuna is influenced by tribal custom often reinforced by village laws. It is partly the result of true courtesy (living habits modified to avoid giving offense to other members of the community), partly the guarding of sacred, therefore dangerous, information from the public, and partly the influence of foreign cultures. Apparently, what is concealed from children is the detailed ritual knowledge of the medicine men. This knowledge is held too sacred to be revealed to children, and much of it is guarded from the adult laity.

*Marriage* is arranged by the parents without the consent or prior knowledge of the couple concerned. They frequently occur during the celebrations associated with puberty. The unsuspecting lad is seized by a group of his friends and carried to the bride's house, accompanied



Fig. 2. This waterfront of a San Blas village shows the characteristic large cane and thatch houses and the brightly painted log canoes. The chiefs and town council of this very conservative community debated before permitting our medical party to land here.

by shouts of "husband-husband" and other appropriate comments. The young couple is pushed into a single hammock and swung several times over a burning log. Afterwards, each takes a bath, and the boy leaves the house. This is repeated for several days; the couple is forced to spend the night in the same hammock without moving or sleeping, carefully chaperoned by the girl's parents. When, after several days, the prospective groom voluntarily accompanies the girl's father to the mountains and brings back a log for the fire, the marriage is considered completed.

The new husband moves into the girl's household and becomes a member of her family. The man and woman are expected to be faithful during marriage; however, a separation is not complicated and the individuals are then free to remarry.

The frequent occurrence of albinism among these people imposes additional marriage customs. Albinism is attributed to the prenatal influence of excess exposure to moonlight and certain medicinal plants. However, hereditary factors are recognized also, and albinos are forbidden to marry each other. Cuna al-

binos seldom marry because they are severely handicapped by poor vision, sensitive skin, and premature skin cancers.

#### GYNECOLOGY

Diseases in this category are thought to result from the activities of various animal spirits on specific parts of the female body. The results are visualized in a real fashion such as mechanical blocking, knotting of tubes, and displacement of reproductive organs.

The menarche usually occurs at 11 or 12 in the average healthy female. Menstrual periods average between two and four days in duration and approximate a 28 to 35 day cycle. Dysmenorrhea is recognized, but is rarely severe enough to be an important problem. A tonic prepared from the stem and root of a jungle plant (member of the piper family) is taken twice a day to relieve symptoms. During the puberty rite, the girl's nose is painted with a red stain to ensure easy menstruation.

Menorrhagia and metrorrhagia are distinguished from the bleeding associated with abortion; however, all vaginal bleeding has a similar cause. The flow of blood is considered to be the red waters of the River of Life; therefore, anything whitish and sticky helps to dry up this flood. A common remedy is a tonic prepared from various vines with whitish and viscous sap. A prescription for dysmenorrhagia and menorrhagia given by the *Nele* of Tigre, considered the best of the present-day *neles*, consisted of the ashes of colored scraps of cloth. The cloth scraps were burned with chanting and cacao bean incense, and the ashes were mixed with a sticky sap and dried in a ball. The patient was directed to grate this medicine into water and drink a cup morning and evening. The rationale is not known, but it probably

relates to the Cuna myth of creation. The Original Mother had different colored menstrual flows, and from each color a different animal world developed, such as the snake world and the alligator world.

The following assortment of remedies is mainly of interest to illustrate other conditions recognized in Cuna medicine. Sterility problems are treated with a tonic of a milky white juice by the husband and wife every day for three months. A drink of roasted mushrooms may be taken daily for one month. These mushrooms have a peculiar tilted cap and are useful only when sterility is due to a tilted uterus or crooked birth canal. The couple is further advised to rest, to improve their diet, and to keep trying. Contraception therapy includes: the tiny yellow fruit of a rare tree found only in the mountains eaten before intercourse, tonic of the bark of the same tree, and roasted withered flowers in water. The couple is further advised to abstain from intercourse.

Vines and branches with large knots or swellings are soaked in water to make baths and tonics which are useful in pelvic tumors. Stria of pregnancy, tender breasts, and dyspareunia each have a separate regimen. Disturbances in libido result from demonic influences on the inherent personality, and are managed by another specialist whose field suggests psychiatry.

#### DISCUSSION

Any discussion of the medical aspects of puberty ceremonies and female diseases in a primitive culture by an outsider must be rather general, and any conclusions must be stated cautiously. This is particularly true when this knowledge is limited to a few of the highest priest-healers who consider much of it too sacred to reveal.

I have attempted a brief, accurate description of the puberty ceremonies as they are performed in the Cuna villages today and a few comments on their medical-religious significance. These rituals are primarily magical-religious in nature; the medical aspect is almost entirely protection against the many demons of disease. The Inna ceremony includes activities suggestive of Christian baptism and confirmation, activities for strengthening tribal identification, and social activities reminiscent of a debutante "coming-out" party.

It appears quite likely that in earlier days the Inna ceremony was closely associated with female puberty and marriageability. Probably the introduction of metal tools, trade goods, and the concept of private ownership created strong economic pressures, which resulted in the separation of the Long Inna feast from puberty. However, this is unimportant because the girl receives the magical protection of the ritual, even if she is too young to comprehend it.

The assortment of treatments for gynecological disorders are of interest because they indicate some of the conditions recognized in Cuna medicine. No satisfactory identification was possible for the plants mentioned because even the Indian names were considered too sacred to reveal.

#### Acknowledgments

Alcibiades Iglesias, Claudio Iglesias, and Rev. Peter Miller of the San Blas Missions generously contributed personal knowledge, information, their influence in contacting various



Fig. 3. The Cuna high priest, wearing a ceremonial hat of blue and yellow macaw feathers, chants the Long Inna ritual in Icanti on the Bayano River, Panama. Cocoa bean incense burns in front of the medicine canoe full of Inna drink. The honored girl is hidden behind a shelter of palm leaves on the left. This is an artist's reconstruction because photographs were not permitted during the ceremony.

medicine men and interpreting, and transportation and lodging during my trips to these villages. Dr. Teodoro A. Arias of the OB/Gyn Service, Gorgas Hospital, Canal Zone, assisted with the gynecological aspects of this paper. The photographs were supplied by Mr. and Mrs. Neville A. Harte of Curundu, Canal Zone.

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## MEDICAL SCHOOL SECTION

# Dean's LETTER

*Dear Members of the Alumni and Friends of the Medical School:*

Wherever the practice of medicine is considered or discussed, there are apt to be statements made about the Art of Medicine and the Science of Medicine.

In the minds of some, one of these entities can exist without the other, although most are agreed that first-rate physicians must excel in both the science and art of medicine.

Science is usually defined as a branch of study concerned with observation and classification of facts, especially with establishment of verifiable general laws, chiefly by induction and hypotheses.

Within a given field of science the average event can be predicted but not the specific event. Thus in the field of medical science the general course of typhoid fever can be predicted. However, how typhoid fever will behave in a specific patient cannot be predicted as far as complications are concerned. This is where the experience of the physician and his mind's interpretation of the clinical findings of the patient's mind and body becomes the Art of Medicine.

It is in this way that the science and art of medicine must function for the patient's good.

The art of medicine cannot exist without an adequate use of the medical sciences. The medical sciences can only be of minimal effectiveness in patients' care unless they are interpreted by the able physician with a background of experience in medical practice.

The University of Maryland Medical School's educational programs try to provide an adequate background in the sciences and an awareness of the need to develop the Art of Medicine.

Sincerely,

WILLIAM S. STONE, M.D.  
*Dean*

## Appointments and Promotions

DR. M. WILSON TOLL has been appointed Assistant Professor of Pathology and head of the Division of Cytopathology. Dr. Toll has been a practicing pathologist most recently in Ray Brook, N. Y., and for a number of years prior to his private practice, he worked in Albany, N. Y., where he trained in pathology at the Bender Laboratory. He is an alumnus of McGill University, Montreal, and received training in cytology at Memorial Hospital for Cancer and Allied Diseases in New York City.

DR. JOSEPH STAFFORD REDDING has been named Associate Professor of Anesthesiology at the School of Medicine and has been promoted to Anesthesiologist-in-Chief at the Baltimore City Hospitals. Dr. Redding has served on the staff of the Baltimore City Hospitals since 1958. An alumnus of the University of North Carolina, he received his medical degree from the University of Maryland, serving his internship and residency in anesthesiology at the North Carolina Memorial Hospital, Chapel Hill.

DR. JOSE RAMIREZ has been appointed Assistant Professor of Clinical Medicine in the School of Medicine.

DR. ENNIS C. LANE has been promoted from an instructor in Biochemistry to Assistant Professor of Biochemistry.

## Personals

AMONG THOSE of the medical faculty participating in the postgraduate programs at the Sinai Hospital were included Dr. John G. Wiswell and Dr. John C. Krantz, Jr. Dr. Wiswell spoke on the subject "The Relationship Between

Thyroid Hormone and Catecholamines," while Dr. Krantz covered the subject "A Pharmacological Approach to Coronary Artery Disease."

DR. RAYMOND K. THOMPSON, Associate Professor of Neurological Surgery in the School of Medicine, has been elected President of the Neurosurgical Society of America. The organization is one of the five major neurosurgical societies in North America.

Dr. Thompson also serves as Neurosurgeon-in-Chief at the St. Joseph's, St. Agnes' and Maryland General Hospitals in Baltimore.

## Lederle Award to Dr. Crispens

DR. WILLIAM S. STONE, Dean of the School of Medicine, has announced that Dr. Charles G. Crispens, Jr., an Assistant Professor of Anatomy at the School of Medicine, has been named recipient of a Lederle Medical Faculty Award for 1964.

In announcing the award, Dean Stone stated that the Lederle Laboratories Division of the American Cyanamid Company provides annually a grant for additional support for medical school faculty members during their development as teachers and research workers.

Dr. Crispens, who teaches a course in medical genetics, is now in the midst of a study to determine the relationship between cancer and a virus-like agent associated with mouse tumors. Since 1955, Dr. Crispens has published more than 20 articles, many of them dealing with his study of neoplastic diseases in birds and mice. He is also the author of a reference book on North American game birds.

Con't on p. iii

# Grants

## Department of Biophysics

THE SCHOOL OF MEDICINE and the Department of Biophysics has received a three-year grant of \$100,000 to support a study of muscle proteins. The research will be under the direction of Dr. Malvin D. Stern, Associate Professor of Biophysics.

Dr. Stern is interested in determining the actin and myosin to form filaments and fibrils in muscle. Dr. Stern plans to use various physical and chemical techniques including light scattering to examine the way actin and myosin molecules arrange themselves under various conditions. He will work with purified proteins extracted from frog, lobster, rabbit and other animal muscle.

Dr. Stern, a former Atomic Energy Commission postdoctoral fellow in biological sciences at Harvard University, has been associated with the University of Maryland since 1963. He holds his B.S. degree from the City College of New York, and an M.A. and Ph.D. from Princeton University.

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DR. JOAN RASKIN, Assistant Professor of Dermatology, has received a grant of \$10,765 from the National Institutes of Health to continue research she has been conducting on the role of allergy in certain skin diseases, specifically *Molluscum contagiosum*. Preliminary studies have indicated the production of certain anti-viral antibodies specific for the virus in certain individuals who have suffered from the infection.

Dr. Raskin has hypothesized that some skin diseases are associated with auto-immune factors, indicating that the patient may be allergic (at times) to his own tissues.

## Dr. Cowley Receives Large Grant for Hyperbaric Oxygen Research

A PRESSURIZED CHAMBER for research in hyperbaric oxygen techniques has been installed at the School of Medicine at the cost of some \$65,000, defrayed by the Dixie Manufacturing Company of Baltimore, who installed the apparatus at cost.

Under the direction of Dr. R. Adams Cowley, head of the Division of Thoracic Surgery, the 8 x 22-foot test unit will be employed as a pilot unit for preliminary studies on animals and eventually on human beings. It will be followed by a quarter-million-dollar unit, designed to accommodate a full surgical team with all of the ancillary equipment. The larger chamber was donated by Hercules Powder Company for research at the School of Medicine.

Although still an experimental method, hyperbaric therapy has been used successfully in the treatment of carbon monoxide poisoning and in some instances of surgical shock.

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Con't from p. ii

A new arrival at the School of Medicine, Dr. Crispens recently completed a year as a postdoctoral fellow at the Jackson Laboratory, Bar Harbor, Me. He holds a B.S. degree from Pennsylvania State University, an M.S. degree from Ohio State University, and a Ph.D. from Washington State University.

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# — IN MEMORIAM —

## Cyrus F. Horine

1897-1964

ON FEBRUARY 26, 1964, Dr. Cyrus F. Horine, Associate Professor of Surgery in the School of Medicine since 1936, died in Union Memorial Hospital. All of his many students, friends, and associates lament the passing of this able surgeon with a warm and scintillating personality. He loved the abundant life of warm friendship and radiated charm and kindness in his winsome smile.

Dr. Horine was born in Myersville, Md., in 1897. He attended the University of Maryland School of Medicine and graduated in 1919. He became Dr. Arthur M. Shipley's first intern in surgery. He served as resident surgeon from 1920 to 1922. He enjoyed the esteem of his colleagues and his capabilities brought him increases in rank in the Department of Surgery. In 1936 he became Associate Professor and retained that rank at the time of his death.

During his close association with the Department of Surgery, Dr. Horine engaged in several research projects. He was gifted with an inquiring intellect and more than 25 publications resulted from his researches. His work with the late Dr. C. G. Warner, published in the *American Journal of Physiology* on pulmonary artery pressures, represented the first time that pulmonary artery pressures were measured in the closed chest without disturbing the intrapleural pressure.

Dr. Horine enjoyed an extensive surgical practice. His patients loved him.

He was honest and humble and had an unusual capacity for making the patient feel that he had a high stake in getting him well. Among his many friends was the late Dr. Frank C. Bressler, and it was Dr. Horine who persuaded Dr. Bressler to leave his fortune to the medical school and establish the Bressler Building and the Bressler Research Fund. We owe this great research opportunity that the school has enjoyed over the ever-lengthening past to the persuasive influence of Dr. Horine and his friend, Dr. Bressler.

Upon the death of Dr. Howard Bubert, Dr. Horine became Medical Director of the Maryland State Police. He was also consultant physician to the State Roads Commission.

Dr. Horine was a Presbyterian and attended the First Church in Baltimore. Like a suit of the finest fabric, he wore his religion on the street, in the home, in the office, and in the operating room. It not only became him but adorned him. We who knew him closely are better men because he walked among us in loving kindness and mercy. We have faith that somewhere, beyond the morning cloud, in the infinite azure of the heavens, his kind and indomitable spirit marches on, declaring, "I have fought a good fight, I have finished my course, I have kept the faith."

JOHN C. KRANTZ, JR.

## W. Kennedy Waller

1905-1963

DR. W. KENNEDY WALLER was born in Queenstown, Md., on September 6, 1905. He attended Washington College Preparatory School and later, The Franklin Day School in Baltimore, from which he was graduated in 1925. He took his undergraduate work at University of Maryland, receiving his B.S. degree in 1928, and his medical degree in 1936 from the School of Medicine.

Dr. Waller interned at University Hospital from 1936 to 1938 and was assistant resident in medicine from 1938 to 1939. From 1939 to 1942 he held a fellowship in medicine under Dr. Maurice Pincoffs.

Dr. Waller entered the Army in 1942 and served with the University of Maryland Unit, 42nd General Hospital until 1944, when he was assigned to command the Rehabilitation Unit at Rockhampton in northern Australia. Dr. Waller was discharged from the Army in 1945 with the rank of Lieutenant Colonel.

He then entered the private practice of Medicine in Baltimore and resumed teaching duties in the Department of Medicine at the University of Maryland, with rank of Associate in Medicine in 1945, and was promoted to Assistant Professor of Medicine in 1936.

Dr. Waller's first love was the clinical practice of medicine, and to this end he was indefatigable in his devotion and loyalty to raise the standards of medical care. In the passing of Dr. Waller, medicine has lost a master in the art of the practice of medicine. His greatest attribute was his ability to handle the troubled, difficult, and burdened patient. He was ever conscious of the power of research and science of medicine, but he never lost feeling for the quality of man.



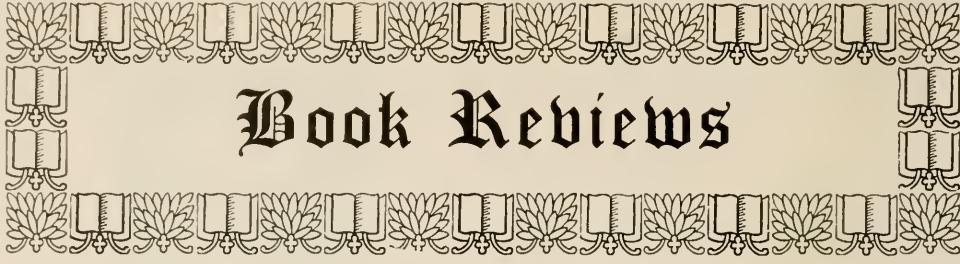
Time was never too short to listen to a patient's complaints and he always appeared to crowd more work into an already busy day. He worked with such enthusiasm and zeal that he gave the impression that he had ". . . many miles to travel before his sleep." The rewards of his work were found in the Greek definition of happiness: "The full use of one's abilities along lines of excellence."

The true evaluation of the merit of a doctor is the relationship that exists between the doctor and his patients and the esteem in which he is held by his colleagues. I know of no doctor who enjoyed a more sincere patient relationship, and I know of no doctor who rendered medical care to more doctors' families.

Dr. Waller was a member of the Baltimore City Medical Society, the Medical and Chirurgical Faculty of Maryland, the American Medical Association, the American Society of Internal Medicine, the Maryland Society of Internal Medicine, the Lister Society, and the Splint Club.

Those of us who knew Kennedy have lost a true friend and the medical profession has lost an able practitioner who lived by the Hippocratic Oath.

With the termination of this phase of his existence, we bid him farewell and Mizpah. WALTER E. KARFGIN, M.D.



# Book Reviews

**Principles of Neurological Surgery** by Loyal Davis, M.D., and Richard A. Davis, M.D. 608 pp. illus. W. B. Saunders Co., Philadelphia, Pa. 1963. \$15.00.

Similar to the authors' previous *Principles of Neurological Surgery*, published 20 years ago, their present text serves as an introduction to novices of this neurological discipline.

The contents include an excellent introductory discussion on neurological examination, localization, and diagnostic studies. The strongest clinical chapters deal with nervous system neoplasia and recent adjuncts in treatment. Cranial, spinal, and peripheral nerve tissues are covered in 140 pages. Unfortunately, emphasis on levels of consciousness and progression of lesions of surgical importance have not been stressed. Neurosurgical problems of infection, intractable pain, and such advances as basal ganglia surgery are covered along with brief mention of treatable congenital anomalies, autonomic and cranial nerve surgery.

The whole realm of neurosurgery is broadly covered. The authors have chosen a potpourri of concepts perhaps uncritically presented rather than a coherent single theory. This is best illustrated in the chapter on head trauma in which a multitude of sometimes conflicting theories are given.

Perhaps the major criticism is the lack of organization. Neither the chapters, paragraphs, nor sentences are arranged in sequence. End of the chapter references are sound with few pertinent omissions.

The illustrations are ample, clearly reproduced, and assist the authors' descriptions. The print is large and readable.

In summary, this is a compact volume that serves to acquaint the house officer and the non-specialist with basic neurosurgical concepts.

WILLIAM KRAUT, M.D.

**Methods of Enzymatic Analysis**, edited by Hans-Ulrich Bergmeyer. Pp. 1064. Verlag Chemie, GMBH, Weinheim/Bergstr., Academic Press, New York and London. 1963.

Enzyme determinations may serve two purposes: a) Analysis for substances can be made highly specific without their prior isolation when they are specific substrates for enzyme reactions. b) Significant changes in enzyme concentrations in serum and tissues occur in many diseases; therefore, determinations of enzyme activities have diagnostic value. In Great Britain and in Europe the techniques flowing from enzyme analysis have been used much more than in this country. Clinical chemists and clinicians in this country will, therefore, welcome this most up-to-date treatise which gives a general survey of enzyme methods, of the theory involved, and of enzyme kinetics.

Specifically, 116 substrates are mentioned, for each of which a detailed method for enzymatic analysis is described. Further, determination methods for 33 enzymes are given as they are most used in medicine, in food chemistry, and in plant chemistry. Many authors have contributed to this work, Europeans as well as Americans.

This book is in one volume in abbreviation of the classic work *Methods in Enzymology*, edited by Colowick and Kaplan and for its conciseness recommends itself to every clinical laboratory.

Since enzymology is a rapidly growing branch of biochemistry, the volume is likely to have many more editions. In the future, the editors might well increase the usefulness of this handbook by expanding the index. Literature references should be given in full, and an author index should be added.

MORITZ MICHAELIS

## MEDICAL SCHOOL SECTION

**Aids to Embryology** by M. B. L. Craigmyle. 6th edition (London, Bailliere, Tindall & Cox, 7 and 8 Henrietta St. W. C. 2.) 200 pp. The Williams & Wilkins Co., Baltimore, exclusive U. S. agents. 1962. \$3.00.

Aids to Embryology, one of 40 pocket-sized volumes in the familiar "Aids to \_\_\_\_\_" series, has been brought up to date in several areas, particularly those dealing with chromosome numbers and with the placenta. Many illustrations have been redrawn; some new ones have been added. In a terse, but readable style a surprising amount of embryologic information is condensed and reviewed in an orderly fashion. Not a textbook of embryology, this volume is a synopsis designed to assist medical students and graduates in preparing for their various board examinations.

V. E. K.

**A Synopsis of Gastroenterology.** G. W. Chandler. 192 pp., ill. The Williams and Wilkins Co., Baltimore, Md., 1963. \$7.00.

This synopsis would be of interest to several groups of physicians: the generalist for the purpose of narrowing the hiatus between his knowledge and the recent advances made in this area; the medical student and resident rotating through gastroenterology as a subspecialty; and possibly the internist interested in reviewing the major facets of gastrointestinal diagnostics and therapeutics in preparation for specialty boards. The book should not be used by the medical student who has not previously studied the pathology of gastrointestinal diseases.

The volume is well organized and written in the form of a general outline. Each chapter discusses a different topic such as diseases of a particular segment of the gastrointestinal tract, liver, pancreas, gall bladder, peritoneal cavity and mesentery. A single chapter is devoted to melena and hematemesis, a common gastrointestinal symptom, while another chapter treats general intestinal diseases. Illustrations are few and consist mainly of drawings, charts and graphs. Other than minor omissions, the basic concepts of gastroenterologic diagnostics and therapeutics are conveyed to the reader. The index is complete. There is no bibliography.

SELVIN PASSEN, M.D.

**Fundamentals of Neurology** by Ernest Gardner, M.D. Pp. 349 with illustrations. W. B. Saunders Co., Philadelphia and London, 1963. \$6.25.

This book was not intended to be a textbook of clinical neurology, its orientation being predominantly anatomical with considerable emphasis on normal physiology. The approach to the subject is basic, dealing mostly with concepts rather than presenting large numbers of specific facts. No subject is discussed at length and the intricacies of histologic neuroanatomy, neurochemistry, and neurophysiology are avoided except for short chapters. Also included is a concise section on embryology. Neurologic dysfunction is alluded to in many places but is not discussed at length and major pathologic processes are mentioned only where they serve to illustrate the anatomical and physiological material presented. The line drawings, diagrams and photographs are technically good and are well chosen to complement the text, which is easy to understand and quite readable. At the end of most of the chapters are one or more short biographical sketches of well known contributors to neurological science, a device which gives the reader a view of some of the history and traditions of the subject. A glossary at the end of the volume gives the origin of many of the terms unfamiliar to the novice and defines the terms which are unique to neurology and likely to be unfamiliar to the beginning student. The references are not abundant but appear well chosen and the practice of giving a short description of their specific value makes them more useful than those contained in many of the longer, more complete bibliographies.

In the introduction the author states that the book's purpose is to serve as a basis for further and more detailed study of disease of the nervous system. This premise is carefully followed. The text's usefulness to residents and practicing physicians in the neurological sciences is, therefore, limited. It would, however, be a valuable supplementary text for courses in neuroanatomy and basic neurology for medical students. The book might also prove quite useful in the postgraduate education of neurological and neurosurgical nurses or in the training of such paramedical personnel as physical therapists, to whom a basic understanding of nervous function is essential.

HOWARD M. WISOTZKEY, M.D.

# ABSTRACTS

of articles by  
faculty and alumni

## The Influence of Sodium-Free Solutions on the Membrane Potential of Frog Muscle Fibers—L. J. Mullins and K. Noda.

*J. Gen. Physiol.* 47:117, 1963.

The membrane potential of frog sartorius muscle fibers in a Cl- and Na-free Ringer's solution when sucrose replaces NaCl is about the same as that in normal Ringer's solution. The K+ efflux is also about the same in the two solutions but muscles lose K and PO<sub>4</sub> in sucrose Ringer's solutions. The membrane potential in sucrose Ringer's solution is equal to that given by the Nernst equation for a K+ electrode, when corrections are made for the activity coefficients for K+ inside and outside the fiber. For a muscle in normal Ringer's solution, the measured membrane potential is within a few millivolts of E<sub>K</sub>. This finding is compatible with a 1:1 coupled Na-K pump. It is consistent with either no coupling of Na efflux to K influx, or a coupling ratio of 3 or greater.

## Detection of Neonatal Jaundice—Martin K. Gorten, M.D.

*G. P.* Jan. 1964, p. 101.

There are many causes of jaundice in the newborn. Regardless of etiology, the true emergency is the hyperbilirubinemia itself. Bilirubin encephalopathy leads to irreversible brain damage. Early detection of jaundice can lead to prompt exchange transfusion and a great reduction in incidence of kernicterus. Early detection is aided greatly by proper artificial lighting with fluorescent bulbs and by blanching the skin with a glass slide or a plastic stick.

Every newborn infant is potentially jaundiced. Varying degrees of jaundice are often found, principally in premature infants. If jaundice develops rapidly to an intense degree, it is considered pathologic.

Severe jaundice in the newborn is considered an emergency calling for rapid and immediate exchange transfusion. The bilirubin test should be performed routinely and jaundice should be searched for so as to discover the condition at a very early time. Instructions for a rapid jaundice check are given in detail, accompanied by illustrations and classification, and full color illustrations.

## Immunological Studies with Group B Arthropod-borne Viruses. II. Effect of Prior Infection with Japanese Encephalitis Virus on the Viremia in Human Subjects Following Administration of 17D Yellow Fever Vaccine—B. H. Sweet, C. L. Wiseman, Jr., M. Kitaoka, and T. Tamiya

*Amer. J. Trop. Med. & Hyg.* 11:562, 1962

The incidence of viremia following vaccination with the 17D strain of yellow-fever virus did not differ appreciably in a group of human subjects possessing prevaccination Japanese encephalitis neutralizing antibodies as a result of previous inapparent natural infection from the incidence of viremia in control groups possessing no prevaccination Group B arbor virus antibodies. There may have been a slight diminution in the level of circulating virus among the subjects with prevaccination JE neutralizing antibodies as compared with the level in the control groups; however, the number of uncontrolled factors which may have influenced these measurements precludes a firm conclusion on this matter.

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Con't from p. xvii

YOUNG, J. D., JR., and POWDER, J. R.: Flank Cutaneous Ureterostomy and Uretero-ureteral Cutaneous Neostomy. *New York State Med. J.*, July, 1962.

YOUNG, J. D., JR., KISER, W. S., and MENDONCA, P.: Studies on Segmental Ischemia in the Etiology of Hypertension. *Trans. Amer. Assoc. G. U. Surgery*, 1963.

YOUNG, J. D., JR., NAIB, Z. M., and POWDER, J. R.: Cytologic Diagnosis of an Early Grossly "Invisible" Transitional Cell Carcinoma of the Renal Pelvis. *J. Urol.*, April, 1963.

YOUNG, J. D., JR.: A Method of Ureterostomy and Uretero-ureteral Cutaneous Neostomy. *Year Book of Urology*, 1962-63.

YOUNG, J. D., JR., PHILIPPIDIS, P. and NAIB, Z. M.: Exfoliative Cytology of a Primary Fibrosarcoma of the Kidney. *J. Urol.* In press.



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## ALUMNI ASSOCIATION

### SECTION

## President's Letter

### Fellow Medical Alumni:

On visiting the campus of our Alma Mater, one is amazed to see the varied and many complex changes that have transpired in the physical set-up as well as in the internal organization of the School of Medicine. Without realizing it, one contemplates all the many illustrious persons and important contributions to medicine that have emanated from our beloved institution. We have truly been bequeathed a legacy of which we can be justly proud. It is our responsibility to see that this tradition continues into the future. It is also a sobering thought to realize that much of the support that made it all possible had its origin in private financial resources.

With the present, we all are aware of the intricate enormity of training medical students, and of continuing our own education to be better physicians. The modern day methods that enable us to attain these goals become ever more elaborate and increasingly expensive. These facts have permitted government to more and more relentlessly engulf medical education. As physicians, I believe we must exert every effort to forestall this encroachment. Contributions from individuals as well as private enterprise can do much to reverse this direction.

A most illuminating special report on this subject recently appeared in the *A.M.A. Journal* of January 4, 1964, Vol. 187, No. 1. This article is easy to read and clarifies its points with lucid diagrams. Remember the more we succumb to government hand-outs, the more we become inextricably indebted to this source. We can go on griping, but it is much more important to do something about it.

As Alumni what can we do? First, convince industry that the education of a physician is an excellent invest-

ment for its funds. Secondly, we can donate to the Student Loan Fund (make checks payable to Medical Alumni Association). These funds are most liberally made available to worthy students, and repayment terms are easy. Another suggestion is to send gifts to the Endowment Fund of the University of Maryland. These monies are used solely for the School of Medicine. The Frank C. Bressler Fund is an outstanding example. This organization was fully described in the July, 1963, BULLETIN. Another possibility is to send funds to the AMA-ERF, and earmark them for our School of Medicine. Let us determine to perform constructive action on this problem, and the future will shine as brightly for our Alma Mater as has the past.

Remember Maryland Medical Reunion Day, May 8, 1964! When you receive this BULLETIN, the time will be near and you will have all the necessary information. I hope that many of you already have sent in your reservations, insuring an outstanding and unqualified success. Dr. Edward Cotter has performed a Herculean job, and everyone is greatly indebted to him for his tireless effort.

Your officers, members of the Board, and various committees are eagerly anticipating greeting you all on this gala occasion, and we assure you and your wives a warm and cordial reception.

GIBSON J. WELLS, M.D.  
*President*

# Medical Alumni Annual Meeting Combined with Maryland Medical Reunion

Medical Alumni Association Combines Meeting with Annual Programs of University Hospital Medical and Surgical Specialty Societies

Meetings to Take Place May 7, 8 and 9, 1964, on the Baltimore Campus

PRESIDENT GIBSON J. WELLS of the Medical Alumni Association has announced a diverse program of great medical and surgical interest to be held on the campus beginning Thursday evening, May 7, 1964. This year, the Medical Alumni Association has combined with the University of Maryland Surgical Society, University of Maryland Hospital Medical Association, the Douglass Obstetrical and Gynecological Society of the University of Maryland, and the University of Maryland Pediatric Society in promoting a three-day medical and surgical program which will include the annual meeting of the Medical Alumni Association and its attendant functions. This combination of scientific and social events no doubt will prove a distinct improvement on the non-unified and irregular programs of the past.

## Program in Miniature

Alumni desiring to attend these functions may be assured of a hotel reservation by contacting the Medical Alumni office directly (PLaza 2-1100, Ext. 305) or by writing to Mrs. Louise Girkin, Executive Secretary of the Medical Alumni Association.

The program will begin on Thursday, May 7, at 8:30 P.M., with the Hospitality Center in the Caswell Room of the Lord Baltimore Hotel. Registration will take place on Thursday, May 7, at the Lord Baltimore Hotel and on Friday, May 8, in the Health Sciences Library, Lombard

and Greene Streets. The entire program follows.

### Medical Alumni Association Activities Friday, May 8, 1964

#### General Assembly, Health Sciences Library Auditorium

A.M.

8:45 Opening Remarks: GIBSON J. WELLS,  
*President*  
Welcome: WILLIAM S. STONE, M.D.,  
*Dean*  
Address: "A Personal Account of the  
Successful American Assault on Mt.  
Everest"  
DAVID L. DINGMAN, M.D.  
*Assistant Resident in Surgery, Member National Geographic Mount Everest Expedition 1963*

10:00 Scientific Sessions

University of Maryland Surgical Society—Health Sciences Library Auditorium

University of Maryland Hospital Medical Association—Gordon Wilson Hall

The Douglass Obstetrical and Gynecological Society of the University of Maryland—Psychiatric Institute Room 1-704

University of Maryland Pediatric Society—Baltimore Union Building Room 202

P.M.

12:10 Annual Alumni Business Meeting, Chemical Hall  
GIBSON J. WELLS, M.D., *President, Presiding*  
Presentation of Alumni Honor Award to HUGH R. SPENCER, M.D., Class of 1910, Baltimore Medical College

12:30 Luncheon, John Eager Howard Hall

2:00 Scientific Sessions

5:30 Cocktail Party for 50-year graduates  
Maryland Room, Lord Baltimore Hotel

6:30 Banquet, Ballroom, Lord Baltimore Hotel  
Introduction of 50-year alumni and  
recognition of Class of 1964  
Speaker: "The Ideal Physician—His  
Confused State in Today's World"  
JACK C. NORRIS, M.D.

Dr. Norris is Assistant Clinical Professor of Pathology at Emory University, Atlanta, Ga. He is a Fellow of the American College of Physicians and the American Society of Clinical Pathologists. He also serves as Chairman of the Workmen's Compensation Medical Board, for the State of Georgia. He is also former President of the Fulton County Medical Society, and Honorary Consultant of the Armed Forces Institute of Pathology in Washington. He is a member of the New York Academy of Sciences, an honorary admiral in the Georgia Navy, and a veteran of World War I and II. He has a commission of Captain in the Medical Corps of the U. S. Navy. He is the author of "Gleanings From a Doctor's Eye," "From Midnight to Daybreak," and "Blood on My Slides." He has also written a volume entitled "An Autobiography of a Practicing Pathologist."

Dancing to follow—Courtesy of the Medical Alumni Association  
Mel Sherr's Orchestra

### University of Maryland Surgical Society

#### PROGRAM

Friday, May 8, 1964

#### Health Sciences Library Auditorium

*Moderator: EDWIN O. DAUE, M.D.*

A.M.

10:00 "Recent Advances in Physiology and Therapy of Refractory Shock"  
ARLIE R. MANSBERGER, JR., M.D.  
*Associate Professor of Surgery*

10:35 "Supervoltage Irradiation Followed by Cystectomy for Bladder Cancer"  
EARL P. GALLEIER, M.D.  
*Assistant Professor of Urology*

11:00 "Peripheral Vascular Emergencies"  
C. THOMAS FLOTTE, M.D.  
*Associate Professor of Surgery*

11:25 "Some Technical Considerations in Radical Mastectomy"  
HARRY C. HULL, M.D.  
*Professor of Clinical Surgery*

P.M.

12:00 Business Meeting  
*Moderator—HARRY C. HULL, M.D.*

2:00 "Polyps of the Gallbladder"  
ROBERT W. BUXTON, M.D.  
*Professor of Surgery*  
*Head, Department of Surgery*

2:25 "Pre-Operative and Operative Evaluation for Pelvic Exenteration"  
EVERARD F. COX, M.D.  
*Assistant Professor of Surgery*

2:50 "Cancer Chemotherapy for Head and Neck Malignancies"  
NORMAN TARR, M.D.  
*Chief of Surgery*  
*U.S.P.H.S. Hospital, Baltimore*

3:15 "Cuff Tears of the Shoulder"  
A. GIBSON PACKARD, JR., M.D.  
*Assistant in Orthopedic Surgery*

3:40 "High Pressure Oxygen Therapy"  
R. ADAMS COWLEY, M.D.  
*Professor of Thoracic Surgery*  
*Head, Division of Thoracic Surgery*

Saturday, May 9, 1964

A.M.

Tour of new University facilities  
Visit Scientific Exhibits

P.M.

Cocktails and dinner at Gibson Island Club  
Transportation will be provided

### University Hospital Medical Association

Friday, May 8, 1964—Gordon Wilson Hall

*Moderator: WILLIAM T. RABY, M.D.*

A.M.

10:00 "Detection of Malignant Lesions of the Upper Gastrointestinal Tract and Pancreas"  
HOWARD F. RASKIN, M.D.  
*Associate Professor of Medicine*  
*Head, Division of Gastroenterology*

10:20 "Bronchitis and Emphysema: The Role of Environmental Factors in Pathogenesis"  
WILLIAM S. SPICER, M.D.  
*Associate Professor of Medicine*  
*Head, Division of Pulmonary Diseases*

10:40 "Pulmonary Tuberculosis: Treatment of the Uncomplicated Case"  
PATRICK B. STOREY, M.D.  
*Associate Professor of Medicine*

11:00 "The Use of Countershock in the Treat-

## ALUMNI ASSOCIATION SECTION

ment of Cardiac Arrhythmias: Selection of Patients and Hemodynamic Changes"

LEONARD SCHERLIS, M.D.

*Associate Professor of Medicine  
Head, Division of Cardiology*

11:20 Panel—"Organic Brain Disorders Presenting as Personality Problems"

EPHRAIM T. LISANSKY, M.D.

*Associate Professor of Medicine*

JEROME K. MERLIS, M.D.

*Professor of Neurology*

*Professor of Clinical Neurophysiology*

11:50 Business Meeting

*Moderator: JOHN ATKINS, M.D.*

P.M.

2:00 "The Laboratory Control of Anticoagulant Therapy"

CARROLL L. SPURLING, M.D.

*Associate Professor of Medicine*

2:20 "The Concept of Auto-allergy and Hypersensitivity in the Connective Tissue Disorders"

ADALBERT F. SCHUBART, M.D.

*Associate Professor of Medicine  
Head, Medical Outpatient Clinic*

*Head, Division of Arthritis*

2:40 "The Clinical Application of Newer Chemotherapeutic Agents"

RICHARD B. HORNICK, M.D.

*Assistant Professor of Medicine  
Head, Division of Infectious Diseases*

3:00 "The Basis of Treatment with Catecholamines"

SHELDON E. GREISMAN, M.D.

*Associate Professor of Medicine*

3:20 Panel—"Diagnostic Radioisotope Scanning Techniques"

JOHN G. WISWELL, M.D.

*Associate Professor of Medicine*

JOSEPH B. WORKMAN, M.D.

*Associate Professor of Medicine*

*Head, Radioisotope Laboratory*

### The Douglass Obstetrical and Gynecological

### Society of the University of Maryland

Friday, May 8, 1964

#### Psychiatric Institute Room 1-704

*Moderator: ARTHUR L. HASKINS, M.D.*

A.M.

10:00 "Origins of Ovarian Tumors"

DONALD G. MCKAY, M.D.

*Professor and Chairman, Department of Pathology, College of Physicians and Surgeons, Columbia University*

11:00 "Fetal Effects of Maternal Viral Disease"

EDITH L. POTTER, M.D.

*Department of Obstetrics and Gynecology, The Chicago Lying-In Hospital*

### Current Projects in the Department of Obstetrics and Gynecology

*Moderator: RICHARD S. MUNFORD, M.D.*

P.M.

2:00 "Metastasizing Leiomyomata"

HANS D. TAUBERT, M.D.

*Instructor in Obstetrics and Gynecology*

2:20 "Tumors of Mesonephric Origin in the Female Genital Tract"

UMBERTO VILLA SANTA, M.D.

*Assistant Professor of Obstetrics and Gynecology*

2:40 "Chiari Frommel Syndrome"

ARTHUR L. HASKINS, M.D.

*Professor and Head, Department of Obstetrics and Gynecology*

3:10 "Pure Gonadal Dysgenesis"

ERICA F. MOSZKOWSKI, M.D.

*Instructor in Obstetrics and Gynecology*

3:30 "Use of Stilbestrol for Ovulation Control"

EDMUND B. MIDDLETON, M.D.

*Assistant Professor of Obstetrics and Gynecology*

### University of Maryland Pediatric Society

Friday, May 8, 1964

#### Baltimore Union Room 202

A.M.

10:00 Welcome

J. EDMUND BRADLEY, M.D.

*Professor of Pediatrics  
Head, Department of Pediatrics*

10:10 Organizational Meeting

*Moderator: J. EDMUND BRADLEY, M.D.*

11:10 "Urinary Cortisol Metabolites in Normal Newborns and Infants of Diabetic Mothers"

MILTON S. GROSSMAN, M.D.

*Assistant Professor of Pediatrics*

11:35 "Esophageal Abnormalities in Infants Demonstrated by Cine-radiography"

EUGENE BLANK, M.D.

*Department of Radiology, Children's Hospital of Pittsburgh*

*Moderator: A. H. FINKELSTEIN, M.D.*

P.M.

2:00 "Obscure Causes of School Failure"

RAYMOND L. CLEMMENS, M.D.

*Assistant Professor of Pediatrics  
Director, Central Evaluation Clinic*

2:25 "Studies on the Types of Gargoylism and Acid Mucopolysaccharide Excretion"

THOMAS A. GOOD, M.D.

*Associate Professor of Pediatrics*

2:50 "Atypical Mycobacterial Infections in Maryland Children"

BULLETIN OF THE SCHOOL OF MEDICINE, UNIVERSITY OF MARYLAND

STUART H. WALKER, M.D.  
*Associate Professor of Pediatrics  
Chief, Department of Pediatrics,  
Mercy Hospital*

3:15 "Theory and Practice in Diabetes Mellitus"

SAMUEL P. BESSMAN, M.D.  
*Professor of Pediatric Research  
Associate Professor of Biochemistry*

3:40 "Radiographic Abnormalities of the Infant's Pelvis"

JAMES A. LYON, JR., M.D.  
*Associate Professor of Radiology  
Assistant Professor of Pediatrics*

Ladies' Activities

Thursday Evening, May 7, 1964

Wives are invited to join their husbands at the Reception and Cocktail Party at the Lord Baltimore Hotel.

Friday, May 8, 1964

A.M.

9:00 Coffee and pastries will be served at the Baltimore Union Building, 621 West Lombard Street.

10:00

A bus tour of residential areas including a conducted tour of the Cathedral, 5200 North Charles Street, and a walk through the Sherwood Gardens. (The bus will leave the Baltimore Union Building at 10 A.M. and from the Lord Baltimore Hotel at 10:15 A.M., promptly, for those who wish to leave from this point.)

P.M.

12:30 Luncheon, Sheraton-Belvedere Hotel, Jubilee Room. Informal modeling of clothes from Miller Brothers, 1110 North Charles Street.

RESERVATIONS

The bus tour will cost \$1.25 and the luncheon, \$3.25. Advance reservation is necessary to provide adequately for the group. Please use the enclosed reservation form to make your reservation and return it with your check to the Medical Alumni Office, University of Maryland School of Medicine, Baltimore 1, Maryland, attention Mrs. Louise Girkin. An early acceptance will be appreciated. However, reservations will be honored as late as May 1, 1964. If desired, tickets will be held at the registration desk.

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HUGH B. McNALLY, M.D.  
EMANUEL SCHIMUNEK, M.D.  
FRANK K. MORRIS, M.D.  
(ex-officio)  
GEORGE H. YEAGER, M.D.  
(ex-officio)

University of Maryland Surgical Society

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Vice-president: EDWIN O. DAUE, M.D.  
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The Douglass Obstetrical and Gynecological Society of the University of Maryland

*President: J. TYLER BAKER, M.D.  
Vice-president: HARRY COHEN, M.D.  
Secretary-Treasurer:  
EDMUND B. MIDDLETON, M.D.*

Con't on p. xxx

**Medical and Chirurgical Faculty of Maryland To Hold 166th Annual Meeting, May 6, 7, 8, 1964**

PLANS ARE now complete for the annual meeting of the Med-Chi to be held at the Alcazar in Baltimore. The theme of the 1964 meeting will be "Family Physicians' Conference" and will not be directed to the research worker.

This year highlights include an address by Dr. Robert R. Linton of the Harvard Medical School who will speak on "Reconstructive Surgical Procedures for Major Obliterative Arterial Diseases." The Finney Lecture will feature Dr. Isidore Cohn, Jr., of Louisiana State University, who will speak on "Recurrence of Carcinoma After Colon Surgery." Dr. Edward R. Annis, President of the American Medical Association, will highlight the Presidential Dinner on Wednesday, May 6.

Dr. Milton S. Sacks of the University of Maryland will speak on "Hematological Aspects of Progress of Diseases of a Medical Nature."

**An Acknowledgment**

AT THE END of each issue of the BULLETIN is an Alumni News Report Form. We are now receiving quite a few of these each week, nearly all of them containing important professional news of graduates of the School of Medicine. The staff of the BULLETIN thanks you for your cooperation.

It is most important that we record the professional achievements of our Alumni and it is therefore of great interest to us that more of you are tearing out the form and are sending us information on yourself or other Alumni of whom you have recent news.

Our compliments and thanks.

**Senior Alumni to be Featured on Occasion of Annual Meeting, May 8**

SPECIAL INVITATIONS have been issued by the Medical Alumni Association to the senior alumni, graduates of 50 or more years, hoping that they will return to the campus for the festivities on May 7, 8, 1964.

The usual annual business meeting, the award of the Alumni Certificate and Gold Key to Dr. Hugh R. Spencer, and the annual banquet will be features of the Alumni part of the celebration. A fine scientific program has been prepared by the medical and surgical hospital specialty groups; this is contained elsewhere in this edition of the BULLETIN.

**Washington, D. C., Alumni Organize**

THE UNIVERSITY OF MARYLAND School of Medicine Alumni Club for the greater Washington area was organized in September, 1963. The first meeting was held in October.

On November 20, a luncheon meeting was held in conjunction with the 31st Annual Scientific Assembly of the D. C. Medical Society. It is planned to make this luncheon an annual event at the time of the annual meeting of the D. C. Medical Society.

The following officers are serving for a term of two years:

Dr. Irving Burka, *President*; Dr. Leo T. Brown, *Vice-president*; Dr. Gerald D. Schuster, *Secretary-Treasurer*; Drs. S. Charles Jones, Benjamin Isaacson, and James T. Estes, *members of the Executive Committee*.

All Alumni of the School of Medicine University of Maryland who are practicing in the vicinity of Washington, D. C., are urged to become members of

the club. Inquiries should be directed to Dr. Gerald D. Schuster, 1918 K Street, N.W., Washington 6, D. C.; telephone FEDeral 8-1280.

### Class of 1939 Plans Program for Alumni Day, May 9

WE ARE LOOKING FORWARD to seeing you on the campus this coming May 7, 8, and 9. The following tentative program for the 25th Reunion of the Class of 1939 will be held on Saturday, May 9, at a noon luncheon at the Student Union Building on the Baltimore campus.

We are extending cordial invitations to all members of the Class of 1939 and their wives for this affair. We believe the after-lunch speakers will be interesting for both classmates and their ladies.

The topics of our short luncheon talks to be presented under the title "What Medical School Did Not Teach Us" will be: "How to Succeed Without Trying," by Dr. Frank S. Cole, '39; "Medical and Non-Medical Experiences in Foreign Lands," by Dr. Edgar Berman, '39; and as this issue goes to press, we are attempting to contact another famous classmate, Dr. Thomas Scott Sexton, Vice President and Chief Medical Director of Massachusetts Mutual Life Insurance Co., who will speak on the topic, "You Can't Take It With You or How to Hide Money for Retirement."

25th Reunion Committee

Class of 1939, School of Medicine

RAYMOND M. CUNNINGHAM,  
*Chairman*

HARRY BECK

JAMES CEANOS

BERNARD KLEIMAN

DEXTER REIMAN

RAMSAY THOMAS

### ERRATUM

In the July, 1963, BULLETIN by error, the BULLETIN reported the death of Dr. Harold Sager. Dr. Sager writes:

"If you have not already done so, please print a retraction of my demise." (We do print and with apologies—  
EDITOR.)

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Con't from p. xxviii

#### University of Maryland Pediatric Society

Organizational Meeting

#### Committee on Arrangements and Scientific Program

EDWARD F. COTTER, M.D., *Chairman*

ERNEST I. CORNBROOKS, JR., M.D.

C. PARKE SCARBOROUGH, M.D.

Medical Alumni Association

JAMES R. KARNS, M.D.

HARRY M. ROBINSON, JR., M.D.

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University of Maryland Hospital Medical Association

THURSTON R. ADAMS, M.D.

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EUGENE J. LINBERG, M.D.

ARLIE R. MANSBERGER, JR., M.D.

#### University of Maryland Surgical Society

EDMUND B. MIDDLETON, M.D.

The Douglass Obstetrical and Gynecological Society of the University of Maryland

KARL H. WEAVER, M.D.

University of Maryland Pediatric Society

MRS. JAMES G. ARNOLD

Ladies' Activities

# Class NOTES

ELSEWHERE in this edition you will find a "tear out" page, for reporting *Alumni News* to the BULLETIN. This is not an idle gesture.

Your achievements, fellow alumnus, are of interest to your classmates. They constitute a reward to the faculty, are a challenge to the younger physicians, and are an item of prestige for the University. Please cooperate with us by forwarding news of yourself or any alumnus to the BULLETIN. Thank you.

## P & S 1888

**Jefferson Davis Bulla** of Trinity, N. C., has recently celebrated his 101st birthday and has announced his firm intention on continuing his very active practice which includes from 5 to 20 patients a day. According to the medical newspaper *Medical Tribune*, Dr. Bulla is a likely candidate for oldest physician still in practice in the United States, though he doesn't make that claim himself.

Dr. Bulla states that in the early days it was hard work, very hard work as he began practice in Randolph County, North Carolina. At first he used a Texas pony, after that he wore out two or three buggy horses, two Model T Fords, and one Model A Ford. Dr. Bulla does not think he has any particular secret for his longevity. His recipe for longevity is "Absolutely none at all." He is in good health himself, having had only one major operation, a cholecystectomy in 1942. Dr. Bulla has no current plans for retirement.

## Class of 1904

**William L. Funkhouser** of 15 16th St., N.E., in Atlanta, Ga., is very active in his general practice. Dr. Funkhouser is 87.

## Class of 1934

**Joseph Millett** of 501 Fulton Ave., Hempstead, N. Y., serves as associate attending physician in the Department of Internal Medicine of the Meadowbrook Hospital, a 600-bed county general hospital of Nassau County, N. Y. Dr. Millett has recently been elected Chairman of the Medical Board of the Meadowbrook Hospital.

**H. Lawrence Sutton** of Hempstead, N. Y., serves as attending physician in the Department of Psychiatry at the Meadowbrook Hospital, Nassau County, N. Y. Dr. Sutton has been named Vice Chairman of the Medical Board.

## Class of 1939

**David L. Filtzer** has announced the removal of his office to 4419 Falls Road in Baltimore, Md.

## Class of 1942

**Louis O. G. Manganiello** of Augusta, Ga., has been appointed by Governor Sanders of Georgia as an Admiral of the Georgia Navy and is serving as a member of the Governor's staff.

## Class of 1943

**Harold Dillon** of 269 S. 19th St., Philadelphia, Pa., has been elected to membership in the American Psychoanalytic Association.

**Robert V. Minervini**, of 330 Park Hill Ave., Yonkers, N. Y., has been certified in general surgery by the American Board of Surgery. Dr. Minervini has practiced surgery in Yonkers since July,

1960, when he completed a four-year residency in general surgery at the Flower-Fifth Ave. Hospital in New York City. He currently serves as an instructor in surgery at the New York Medical College.

#### Class of 1944

**Bryant L. Jones** is actively connected with the cancer chemotherapy program of the National Institutes of Health. He is active in the collaborative research phases of this project.

#### Class of 1946

**Thomas C. McPherson** is a member of the staff of the Mead Johnson Co. at Evansville, Ind.

#### Class of 1949

**John A. Spittell, Jr.**, Consultant of the Section of Medicine of the Mayo Clinic and Assistant Professor of Medicine at the Mayo Foundation, is the author of an article entitled "Dissecting Aneurysm (Dissecting Hematoma) of the Aorta," published in the American Heart Association's "Modern Concepts of Cardiovascular Disease," 33:837-40 (Feb., 1964).

#### Class of 1950

**Harold Daly** of Albion, Mich., was a recent visitor at the School of Medicine.

#### Class of 1954

**Anthony A. Bernardo** of 130 Rock St., Fall River, Mass., has been certified in general surgery by the American Board of Surgery. Dr. Bernardo resides at 8 Driftwood Drive, Barrington, R. I.

**David Looff** has been appointed to the staff of the new University of Kentucky Medical School in the Department of Psychiatry. Dr. Looff, who lives at 1308 Fincastle Rd., Lexington, Ky., was

on active duty in the U. S. Public Health Service until July, 1962. In July, 1964, he will take up full-time work at the University of Kentucky as Assistant Professor with specific responsibility for exploring needs for child psychiatry in certain pilot project communities in Kentucky. Dr. Looff was certified in general psychiatry in October, 1963.

**Harold W. Tracey** of 1822 Brunswick Rd., Charlotte, N. C., has been certified in orthopedic surgery by the American Board of Orthopedic Surgery. Dr. Tracy is in private practice with the Miller Orthopedic Clinic in Charlotte.

#### Class of 1956

**C. Herschel King**, anesthesiologist, received his certification as a Diplomate of the American Board of Anesthesiology during 1963. Dr. King has been appointed Assistant Professor of Anesthesiology at Duke University Medical Center. He assumed his new post on January 1, 1964. Dr. King will reside at 2622 Charlotte St., Durham, N. C.

#### Class of 1962

**Allen H. Satou** is serving a residency in psychiatry at the University of California in Los Angeles.

#### Class of 1963

**Donald H. Gilden** of 840 S. Wood St., Chicago, Ill., is serving his internship at the University of Illinois Hospitals. Beginning on July 1, 1964, Dr. Gilden will serve as resident in the Department of Medicine at the University of Chicago Hospital and Clinics.

**Michael L. Levin** has accepted a surgical residency at the University of Illinois Research Education Hospitals under the direction of Dr. Warren H. Cole. Dr. Levin's current address is 840 S. Wood St. (Box 82), Chicago, Ill.

# Deaths

## Class of 1906

**Lafayette Lake** of 45 Van Ness Rd., Belmont, Mass., died recently.

### B. M. C. 1897

**David S. Morrill** of Farmville, N. C., died recently.

### Class of 1901

**Carl R. Ahroon** of Normal, Ill., died on December 21, 1963.

### B. M. C. 1903

**Daniel Alfonso Dees** of Grantsboro, N.C., died September 19, 1963. Dr. Dees was 83.

### Class of 1903

**Herbert E. La Roque**, well-known Baltimore ophthalmologist, died at his home, 10 Cherry Hill Rd., Reisterstown, on December 11, 1963. Dr. La Roque was 83.

A native of Baltimore, Dr. La Roque received his basic education at Baltimore City College and, after graduation from the School of Medicine, University of Maryland, studied abroad. For many years he was associated with the Baltimore City Health Department and was active on the staff of the Mercy and St. Joseph's Hospitals.

### P & S 1904

**Wilbur E. MacDougal** of 186 Nowell Rd., Bangor, Me., died recently.

### Class of 1905

**Sydenham Rush Clarke** of 212 E. Morris Ave., Lutherville, Md., died February 26, 1964, at the age of 87.

**William H. Mitchell** of Parma, Idaho, died October 20, 1963. Dr. Mitchell was 84.

### B. M. C. 1908

**Harry C. Podall** of Norristown, Pa., died at Sacred Heart Hospital in Norristown, on Monday, February 17, 1964. Dr. Podall was 81.

A native of New Haven, Conn., and an alumnus of Yale University, Dr. Podall specialized in Psychiatry following his graduation from the School of Medicine. In 1958 he was presented a plaque by the Montgomery County Medical Society in honor of his 50 years of service to the community.

For a number of years, Dr. Podall was on the staff of the Norristown State Hospital, resigning to become chief of Neuropsychiatry at the Veterans Administration Hospital in Philadelphia. Later he assumed a similar post at the Veterans Hospital in Coatesville, Pa., where he was chief of the Psychiatric Section for almost 20 years. In 1952 he retired to become clinical director at the Pennhurst State School, Spring City, Pa., a post he held at the time of his death. Dr. Podall had also been Psychiatrist at the Montgomery County Prison in Norristown. He was consultant in Neuropsychiatry at the Montgomery Hospital and Sacred Heart Hospital, both of Norristown.

Certified in both psychiatry and neurology, he was a long-time Fellow of the American Psychiatric Association and the Pennsylvania State Psychiatric Association, and a member of the American Medical Association, the Pennsylvania State and Montgomery County Medical Societies, and the Philadelphia Medical Club. He was a member of the Yale University Alumni Association, the

Alumni Association of the University of Maryland, and attended St. Patrick's Church in Norristown.

**Class of 1908**

**Herbert J. Rosenberg** of 3433 Bankhead Ave., Montgomery, Ala., died recently.

**P & S 1909**

**Felix M. Vilella** of 5754 S.W. 47th St., Miami, Fla., died on January 24, 1964.

**P & S 1910**

**Benjamin B. Finkelstone** of Bridgeport, Conn., died recently.

**Wilbert Lee Grounds** of Roaring Springs, Pa., died recently.

**P & S 1911**

**Howard E. Harmon**, a life-long resident of Chillicothe, Ohio, was born on December 14, 1888. He graduated from Chillicothe High School in 1907 and entered the College of Physicians and Surgeons that year. Dr. Harmon served in both World Wars. He was a major in the Medical Corps in World War I, and in World War II was a Lieutenant Colonel.

On June 8, 1961, he received a 50-year pin from the University of Maryland, and on December 5 of that year received a "50-year Award of Distinction" from the Ohio State Medical Association.

He was a member of the Elks, Kiwanis Club, Masonic Lodge, and the Sons of the American Revolution, Ross County and Ohio State Medical Associations. He was also a member of Chi Zeta Chi Medical Fraternity which amalgamated with Phi Rho Sigma years later.

JOHN HOGAN, SR., M.D.

**Class of 1914**

**Capt. John Robert Agnew** of 37 Eckington St., Springfield, Mass., died December 7, 1963.

**Clair Crouse Henderson** of Mt. Olive, N. C., died on October 8, 1963. Dr. Henderson was 75.

**Raymond M. Troxler** of 517 Fountain Place, Burlington, N. C., died August 5, 1963. Dr. Troxler was 78.

**Class of 1915**

**Edgar Winslow Lane** of 122 Flamingo Rd., Clearwater, Fla., died in October, 1963.

**Albert Augustus Naumann** of 4828 Bayville Ave., Tampa, Fla., died recently.

**Class of 1916**

**Everett L. Bishop** of Medical Arts Bldg., Atlanta, Ga., died on August 12, 1963, at the age of 70.

**Tomás Dominguez** of Puerto Rico died in October, 1963, of heart disease.

**Julio R. Rolenson**, a native of Ponce, Puerto Rico, died at his home in Santurce, Puerto Rico, on October 17, 1963. Death followed the complications of coronary occlusion.

Following his graduation, Dr. Rolenson interned at the Maryland General Hospital and then joined the armed forces serving in the medical corps of the American Expeditionary Forces in France. He was discharged with the rank of Captain. He later married Ana Teresa Ballan. Dr. Rolenson was a member of the Puerto Rico Medical Association, the American Legion, and a very active member of the University of Maryland Alumni Association, having served as Past President of the Puerto Rico chapter.

## ALUMNI NEWS REPORT

## TO THE BULLETIN:

I would like to report the following:

## SUGGESTIONS FOR NEWS ITEMS

## American Board Certification

### Change of Address

## Change of Office

### Residency Appointment

### Research Completed

### News of Another Alumnus

#### Academic Appointment

### Interesting Historic Photographs

Name \_\_\_\_\_

## Address

Send to

Bulletin—School of Medicine  
University of Maryland  
31 S. Greene St.  
Baltimore 1, Md.



# BULLETIN *School of Medicine* *University of Maryland*

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# Esophageal Defibrillation of the Canine Heart, I\*

R. ADAMS COWLEY, M.D., AVRUM TAMRES, and MORRIS TISCHLER, M.S.

## Introduction

CARDIAC DEFIBRILLATION is usually accomplished by applying a potential either directly on the heart or on the surface of the intact chest. Neither method is the optimal solution to the problem.

Open chest defibrillation<sup>1,2</sup> of the heart has been the more successful method of resuscitation but often it is not feasible due to the location of the patient, lack of necessary anesthesia equipment, and qualified surgical personnel available at the critical moment. Furthermore, thoracotomy without ventilation control may only compound a distressful situation.

The closed chest technique of defibrillation<sup>3</sup> utilizes high voltage and high power levels and requires large bulky equipment with fifteen times more power than instruments used for open chest defibrillation. This excessive but necessary power may cause thermal burns, severe insult to the nervous system and cardiac resuscitation is often unsuccessful.

The body acts as a low impedance path when electrodes are placed under the skin as compared with the impedance when electrodes are placed on the skin surface. The impedance is three times greater in the latter instance. If an electrode could be placed near the heart through a natural body orifice this impedance might be overcome. The esophagus was chosen as the most practical and accessible site to place such an in-

ternal electrode. When placed in close proximity to the heart, the electrode acts as if it were touching the heart.

This paper describes a method whereby low power defibrillators can be used for either closed or open chest defibrillation using an esophageal electrode in conjunction with an external chest electrode.

## Method of Approach

Experiments were performed on healthy mongrel dogs to evaluate the various techniques of cardiac resuscitation. The animals were divided into three groups: Group I—open chest defibrillation, Group II—closed chest defibrillation and Group III—esophageal electrode defibrillation. All dogs received pentobarbital sodium (Nembutal Sodium) anesthesia with tracheal intubation and intermittent positive pressure breathing air. Arterial pressures and electrocardiograms were monitored and recorded throughout the procedure. Each group of dogs was fibrillated by applying 60 cycle voltage directly to the heart. In Group II and III, fibrillation was induced by a needle probe through the chest wall directly to the heart.

## Results

### 1. Open Chest Procedure

In Group I, the dog's chest was opened prior to inducing fibrillation. To resuscitate the animal, paddles 4 cm. in diameter were placed directly on the heart. The defibrillator used produced a square wave with an amplitude of 150 volts and operating at a frequency ranging between 150 and 250 cycles. The pulse duration was 1/10 seconds.

\* From the Department of Surgery, Division of Thoracic Surgery, University of Maryland School of Medicine, Baltimore 1, Maryland. Supported by National Institutes of Health Research Grant H-4945.

## 2. Closed Chest Procedure

In the closed chest technique (Group II), 8 cm. paddles were placed on the chest wall in the standard position. Defibrillation was attempted with the same defibrillator described above except the amplitude had to be increased from 150 volts to 440 volts.

## 3. Esophageal Electrode Procedure

In Group III dogs, an esophageal electrode constructed from a No. 26 endotracheal tube with a 3-inch braided copper wire mesh surrounding the tip (Fig. 1) was inserted with the mesh wiring in the extended position to the approximate level of the heart. While holding the catheter in position, a wire stylette connected to the mesh was pulled, thereby causing the mesh to contract and hence increasing the diameter of the mesh. Firm contact was hereby made with the wall of the esophagus. A second 8 cm. paddle type electrode was placed on the dog's chest, directly over the heart. In this position the most direct electrical path was made through the cardiac muscle. The defibrillator used was the same model as that used in both Groups I and II, however, an amplitude of only 200 volts was required. Table I summarizes the study. It appears that the esophageal electrode technique is the least equal in effectiveness to that used in the open chest technique.

Table I

Technique of defibrillation	No. of Experiments	Successful Attempts At Resuscitation		Voltage Used
		Number	Number	
Open Chest (Group I)	24	24	100%	150
Closed Chest (Group II)	10	7	70%	440
Esophageal (Group III)	40	39	*97.5%	200

\* In Group III, one of the animal's heart fibrillated for four minutes 19 seconds. After fibrillation the electrocardiogram returned to a sinus rhythm but arterial pressure did not respond. This was not recorded as a successful attempt at resuscitation.

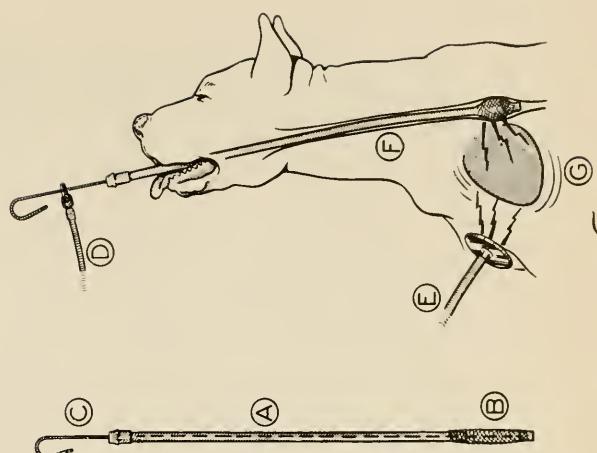


Fig. 1. A—Plastic tube. B—Copper wire mesh. C—Wire stylette. D—Current to mesh via stylette. E—External Electrode. F—Esophagus. G—Heart.

Histological sections of esophagus were taken several days following the procedure. No tissue damage was observed where the electrode came in contact with the esophagus.

## Conclusions

Closed chest defibrillation requires high power type of defibrillators. At the present time, defibrillators operating at 5,000 watts (700 volts) and 5,000 volts DC (capacitor discharge) are used.

A special type electrode, inserted in the esophagus, was found to provide effective defibrillation when used with much lower power instruments. While the esophageal method has performed effectively on animals, the technique has yet to be applied to a human subject.

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# Anesthesia LXVII: Indoklon, A New Psychiatric Drug, and Its Sulfur Analog\*

ROBERT S. ROZMAN, Ph.D., R. TERRELL, Ph.D.\*\* and JOHN C. KRANTZ, JR., Ph.D.

THE ACCELERATED search for pharmacologically active fluorinated compounds initiated by Robbins<sup>1</sup> in 1946 led to the development of the anesthetic Fluoromar (2,2,2-trifluoroethyl vinyl ether) at the University of Maryland. The introduction of fluorine into the ether molecule greatly reduced the flammability of the anesthetic. This suggested that the addition of more fluorine atoms to the diethyl ether molecule and the elimination of the double bond would further decrease flammability. Thus, bis (pentafluoroethyl) ether was studied.<sup>2</sup> This compound was found to be pharmacologically inert. Since Robbins had shown that ethyl trifluoroethyl ether possessed anesthetic properties,<sup>1</sup> the symmetrical hexafluorodiethyl ether (HFE) was synthesized. Surprisingly this compound was shown to be a convulsant by Krantz *et al.*<sup>3</sup> A comparison of the pharmacologic activity of these diethyl ethers is given in Table 1.



Hexafluorodiethyl ether, now known as Indoklon, was extensively investigated in many species of animals. No toxic effects were observed after many repeated exposures to the drug. Accordingly this agent was tried as a pharmacconvulsive drug in place of shock therapy in mentally disturbed patients. The success and efficacy of this experimental drug recently culminated in approval for

Table 1. Comparison of Diethyl Ethers

Compound	Pharmacologic Activity
$\text{CH}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ . . . . .	Anesthetic
$\text{CF}_3\text{CH}_2\text{OCH}_2\text{CH}_3$ . . . . .	Anesthetic
$\text{CF}_3\text{CH}_2\text{OCH}_2\text{CF}_3$ . . . . .	Convulsant
$\text{CF}_3\text{CF}_2\text{OCF}_2\text{CF}_3$ . . . . .	Inert

clinical use by the Food and Drug Administration.

As recently reported<sup>4</sup> in an interview with Dr. William Karliner, chief clinical investigator of Indoklon, schizoaffective disorders and paranoid states both respond more to this drug than to electroconvulsive therapy. A series of 2,348 Indoklon treatments administered to 159 patients was described. Of these, 59 were "much improved," 93 were "improved," while the remaining 7 were not benefited by this treatment.

When the sulfur analog of Indoklon was made available, it was deemed de-

sirable to compare the two agents pharmacologically. Thioindoklon (HFTE) was synthesized by the following method.<sup>5</sup>

A solution of 2,2,2-trifluoroethyl-p-toluene sulfonate (202 g) in dimethyl sulfoxide (200 ml) was added slowly at 70-80° C over a period of one hour to a stirred solution of sodium hydrosulfide (136 g of commercial "NaSH + aq") in dimethyl sulfoxide (300 ml). The reaction was heated at 70° C for two hours, water (500 ml) was added and the product (77 g crude) distilled from the reaction mixture (Pot. up to 100° C). The crude product was

\* From the Department of Pharmacology, University of Maryland School of Medicine, Baltimore.

\*\* Research Chemist, Central Research Laboratories, Air Reduction Company, Inc., Murray Hill, New Jersey.

Table 2. Comparison of the Physical Properties of HFE and HFTE.

	HFE	HFTE
Formula .....	$\text{CF}_3\text{CH}_2\text{-O-CH}_2\text{CF}_3$	$\text{CF}_3\text{CH}_2\text{-S-CH}_2\text{CF}_3$
Appearance .....	clear, colorless liquid	clear, colorless liquid
Molecular weight .....	182.07	198.15
Boiling point .....	63.9° C	86.5 - 87° C
Specific gravity .....	1.417	1.340
Flammability at room temperature .....	non-flammable	borderline flammability
Odor .....	mildly ethereal	objectionable and penetrating

Table 3. Convulsive Thresholds (Inhalation) of HFE and HFTE in Mice

Compound	Dose ml	% Clonic Convulsions	% Tonic Convulsions
HFE	0.15	0	0
	0.20	10	0
	0.25	60	0
	0.30	90	0
	0.50	100	0
	0.65	100	30
	0.80	100	50
	1.20	100	90
HFTE	0.04	20	0
	0.05	40	0
	0.07	90	10
	0.10	100	70
	0.20	100	90
	0.40	100	100

dried over magnesium sulfate and redistilled through a 75 x 1 cm column packed with glass helices to yield pure bis (2,2,2-trifluoroethyl) thioether, 16 g.

Table 2 compares some of the physical properties of HFE and HFTE.

Measurements of the convulsive threshold of HFE and HFTE after inhalation by mice were made by the technique described by Truitt *et al.*<sup>6</sup> for the all-or-none response. Groups of ten mice were used for each dose. Graded doses of the convulsant were added to the gauze all-at-once; the animal was allowed to remain in the jar for a period of ten minutes unless a tonic convulsion occurred first, at which time the animal was removed immediately.

A number of doses of HFE and

HFTE was administered to groups of 10 Webster mice each by intravenous injection of a 1% V/V solution in Carbowax 300 (55%), alcohol (15%) and water (30%). Some of the groups were pretreated with Tridione, 250 mg/kg, intraperitoneally one hour before convulsant administration. Dose response lines of the lethal and convulsive doses and the LD<sub>50</sub> and CD<sub>50</sub> and their 95% confidence limits were established by the graphic log-probit method of Litchfield and Wilcoxon<sup>7</sup> from these data. The therapeutic index was calculated by the ratio LD<sub>50</sub>/CD<sub>50</sub>.

Two monkeys, 5 to 6 Kg, were exposed to the vapor of HFTE through a typical anesthesia inhalation mask. Volumes of 0.2 ml were dispersed on gauze in the mask.

## Results

The pharmacologic studies with HFTE show that this compound, like its oxygen analog HFE, is a potent convulsive agent in the mouse and monkey.

The data in Table 3 show the convulsive thresholds of HFE and HFTE upon inhalation in the mouse.

Figure 1 shows the results of HFE injections into mice. The values are expressed as ml/mouse. In the unpre-

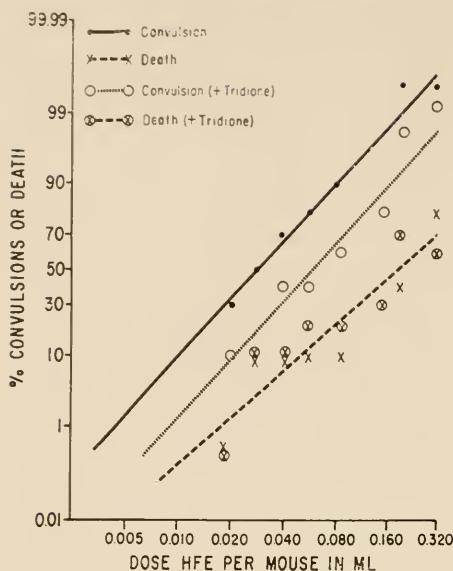


Fig. 1. Convulsive and lethal dose response curves for HFE after intravenous injection into mice. The ordinate is a probit scale. The abscissa is ml of a one per cent solution of HFE per mouse.

medicated animals the  $CD_{50}$  is  $0.030 \pm 0.005$ , the  $LD_{50}$  is  $0.175 \pm 0.039$ , and the TI is 5.8. Tridione pretreatment did offer some protection against the convulsive effects of HFE but not against the lethal effects. The  $CD_{50}$  is  $0.060 \pm 0.010$  while the  $LD_{50}$  remains the same. Figure 2 shows the result of HFTE injections into mice. In the unpremedicated animals the  $CD_{50}$  is  $0.013 \pm 0.002$ , the  $LD_{50}$  is  $0.020 \pm 0.002$  and the TI is 1.5. With Tridione pretreatment the  $CD_{50}$  is  $0.032 \pm 0.005$  while the  $LD_{50}$  remains the same. Here again Tridione pretreatment partially protected against the convulsions but did not affect the toxicity. Since the therapeutic index with pretreatment is less than one (TI=0.63), it appears that at least part of the toxicity is due to factors other than convulsive properties. Of special interest was the behavior of the mice exposed to HFTE. After recovery from the convulsive seizure many of the animals exhibited a peculiar activity of the muscles in the

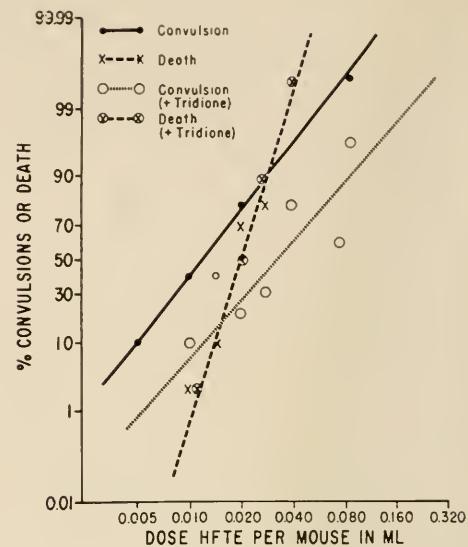


Fig. 2. Convulsive and lethal dose response curves for HFTE after intravenous injection into mice. The ordinate is a probit scale. The abscissa is ml of a one per cent solution of HFTE per mouse.

neck and the head. The head was dropped and moved upward rapidly for a period of 5 to 10 minutes upon encountering any form of stimulus. This phenomenon endured for several days. This response has never been observed following seizures evoked by HFE.

The two monkeys exposed to HFTE vapors convulsed violently within 30 seconds of the vapor inhalation. The tonic phase of the convulsion prevailed for several minutes with marked opisthotonus followed by a clonic phase that lasted for 5 to 8 minutes. It appeared that the response was more violent than that evoked by HFE.

### Summary

These studies show that bis (2,2,2-trifluoroethyl) thioether, HFTE, evokes convulsive seizures in mice and monkeys similar to its oxygen analog. The thioether is more potent as a convulsive agent and also more toxic. From the data on mice it appears that HFTE is twice

as potent as its oxygen analog in evoking convulsive seizures. The toxicity of HFTE in mice is approximately 8 to 9 times that of HFE. Although the convulsive thresholds of HFTE may be raised by Tridione pretreatment, toxicity is not affected. These animal experiments indicate the inadvisability of using HFTE in man to induce convulsive seizures in the same manner in which HFE is employed.

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#### ERRATA

WE WISH to make public apology to Dr. Aaron Feder, Associate Professor of Clinical Medicine, Cornell University Medical School, for our failure to include explanatory legends to the illustration, diagram, and table in his article, "A Quarter-Century of Mercurial Diuretic Therapy," which was published on pages 59-62 of the October 1963 BULLETIN (Vol. XLVIII No. 4).

Also in the footnote on page 59, we listed Dr. Feder as Clinical Assistant Professor of Medicine, Cornell University Medical Center, New York City, instead of "Associate Professor of Clinical Medicine, Cornell University Medical School," and we failed to mention that the article came from the "Department of Medicine, Cornell University Medical Center—New York Hospital." Instead, we mentioned only that the article was presented at the annual Alumni Reunion, University of Maryland School of Medicine, June 6, 1963.

In the center of the lefthand column of page 60, we reproduced a "Part of page 146 of 'Course Outline' distributed by the Department of Pharmacology,

University of Maryland, in 1935" without appending this explanation in a legend.

In the top of the lefthand column of page 61, we reproduced the chemical structure of "organic mercurial diuretic compounds" without a heading and we also failed to include a footline legend stating that it was "Adapted from Pitts, R.F., *The Physiological Basis of Diuretic Therapy*, courtesy of author and Charles C Thomas, Publisher, Springfield, Illinois."

Also, we reproduced on the lower half of page 61 a table without the title, "Table I—Commonly Used Organic Mercurial Diuretic Compounds." Also, this table should have carried a footline legend stating that it was "Adapted from Pitts, R.F., *The Physiological Basis of Diuretic Therapy*, courtesy of author and Charles C Thomas, Publisher, Springfield, Illinois."

We are sorry that these omissions occurred and apologize to all of our readers as well as the author for the inconvenience that these omissions may have caused.—ED.

# Spinal Fluid Cytodiagnosis of Central Nervous System Malignancy\*

(Preliminary Report) †‡

HOWARD M. WISOTZKEY, M.D. and RIVA NOVEY, M.D.

SINCE the introduction of exfoliative-cell technique for the diagnosis of uterine cancer this method has been widely employed in the detection of malignant cells in such material as sputum, bronchial washings, body cavity fluids, and urine. The value of cytodiagnosis in malignant tumors of the central nervous system has not been widely recognized and has had limited application. The finding that certain tumors would desquamate cells into the spinal fluid and by so doing make the diagnosis possible was suggested and demonstrated many times prior to the development of a practical technique applicable clinically.

In 1937 Merritt and Fremont-Smith<sup>1</sup> stated that tumor cells might be present in the spinal fluid in cases of medulloblastoma, metastatic carcinoma, and sarcoma. Others<sup>2, 3, 4, 5, 6</sup> reported the desquamation and implantation of gliomas along the cranio-spinal axis. In 1951 Platt described the normal cellular make-up of ventricular, spinal, and cisternal fluids and the morphology of neoplastic cells in these fluids as well as in neoplastic cysts. Following this there were a number of reports of small groups of cases in which the diagnosis of ma-

lignancy was made by the use of cytologic methods applied to the spinal fluid.<sup>8, 9, 10, 11</sup> More recently Kline *et al.*<sup>12</sup> have reported the results of a study of 2270 spinal fluid specimens. In this series 110 patients were eventually proven to have tumor, either at operation or at autopsy, and of this group 44 or 40 percent had cytologic studies positive for cancer. This figure is slightly higher than what can be expected when routine surgical and autopsy material is surveyed for evidence of subarachnoid extension of tumor.<sup>13</sup>

In a pilot study one of us (R.N.) examined a series of spinal fluid specimens obtained from an unselected group of 26 patients. Of these, five were shown to have tumor and a diagnosis of oligodendrogloma was made in one case. The other four did not show subarachnoid extension in subsequent pathological material. These specimens were examined by a centrifugation and smear technique, no longer used.

## Method

Spinal fluid is obtained at the time of lumbar puncture, from ventricular aspiration or from neoplastic cysts. Since the best methods of cytodiagnosis depend on the examination of fresh material, the fluid should be prepared at the bedside or at best to have the fluid arrive in the laboratory as soon as possible. Many of the cells will have been present in the fluid for some time and degenerative changes will already have taken place.

\* This investigation was supported in part by a Public Health Service fellowship (5 T1 NB 5224 06) from the National Institute of Neurologic Disease and Blindness.

† This work is part of a continuing study. Since this report was written 60 additional specimens have been examined and will be reported at a later date.

‡ From the Division of Neuropathology, University of Maryland School of Medicine, Baltimore, Md.

Any delay will further reduce the chances of having an acceptable specimen. All specimens are to be processed with the use of a 5 millimicron pore cellulose filter membrane.\* The filtering process and staining procedure has been described elsewhere.<sup>13</sup>

### Interpretation

Normal cells in the spinal fluid are usually single although some clumping can occur. Infectious processes and conditions in which the protein content of the fluid is high may cause marked clumping. Clumps or groups must be differentiated from sheets of cells and interpreted with caution. Histiocytes and lymphocytes are easily identified. Arachnoidal cells are also present but they may be differentiated from histiocytes only with difficulty. A number of large cigar-shaped nuclei are also seen but are not readily identifiable. It should be noted here that bare nuclei should be excluded when making a diagnosis of malignancy.

Neoplastic cells from both primary and secondary neoplasms can be identified. Cells from metastatic tumors offer little difficulty as their morphology is the same as elsewhere. Primary tumors are more difficult to identify. The criteria of malignancy must be stringently applied to avoid the possibility of false-positive reports. In cyst fluids the cells may not have malignant criteria and this makes accurate diagnosis difficult.

### Results

One hundred and forty-three spinal fluid specimens from 126 patients have been studied. Touch preparations from 50 central nervous system tumors stained with the Papanicolaou stains have also been studied in an attempt to character-

Table I

No. of patients .....	126
No. of examinations .....	143
No. of patients with proven tumor .....	22
No. of positive cytologic studies .....	6
% positive studies .....	27

Table II

No. of positive studies .....	6
primary tumors .....	2
metastatic tumors .....	4
No. of negative studies (tumor proven) .....	16
primary tumors .....	11
metastatic tumors .....	5

ize glial cells. Twenty-six patients were shown to have tumor histologically and six had positive cytologic studies. (Table I) In two patients the cytologic interpretation was inconclusive and repeat examination could not be carried out. The number of primary and secondary tumors is shown in Table II. Four other patients were discharged from the hospital with a clinical diagnosis of metastatic carcinoma but without cytologic evidence or histologic verification.

### Discussion

Of the primary tumors of the central nervous system, ependymomas, medulloblastomas and sarcomas, and sarcomas might be expected to regularly exfoliate cells into the subarachnoid space. These tumors are not common and cells from these are not always recoverable. Encapsulated tumors, such as meningiomas and neurolemmomas, although at times in contact with the subarachnoid space, can be expected to exfoliate only capsular cells of meningeal origin.

The largest group of primary brain tumors, the gliomas, do not usually invade the subarachnoid space. Cytologic diagnosis of histologically benign tumors

\* Cellulose filter membranes used were manufactured by the Millipore Filter Corp., Bedford, Mass.

is, therefore, a remote possibility except following operation. This type of examination is superfluous and is only rarely carried out.

In pathologic material the majority of metastatic tumors do not reach a surface until late in the course of the disease. Diagnosis by cytologic methods is only possible when the meninges are seeded primarily or when a metastatic lesion breaks into the subarachnoid space or ventricular system.

The present series was obtained almost entirely from patients admitted to the neurosurgical service and attitudes and practices of the neurosurgeon impress themselves upon the study. When arteriographic localization is possible in a patient with a clinical history suggestive of tumor the patient usually goes to operation without having a lumbar puncture. The reluctance of the surgeon to perform a lumbar puncture in the face of elevated intracranial pressure even though the clinical picture is not clear accounts for some patients not having cytologic examinations. Metastatic tumors are not common on this service and the lack of interest manifested by other hospital services limits the contact with these tumors.

Where does the cytologic examination of the spinal fluid fit into the problem of the diagnosis of central nervous system neoplasia? In those patients where the clinical situation makes lumbar puncture inadvisable the likelihood of making a positive diagnosis would not seem to be worth the risk. However, in patients where the clinical diagnosis of a mass lesion is established and immediate operation is not mandatory, cytologic studies may differentiate primary and metastatic tumors. In those patients in whom the clinical diagnosis is in doubt, spinal fluid examination by this method may yield

valuable information. An unexplained pleocytosis in a routine spinal fluid examination should be an indication for cytologic studies.

This is graphically illustrated by the following case.

*Clinical History:* A 25-year-old male was admitted to the hospital because of severe headaches and neck pain of 1 month's duration. He had had transient episodes of diplopia and "black-out" spells. Six days prior to admission he was examined by a neurologist at another hospital. At that time he had bilateral papilledema, palpebral sagging on the right side, and deviation of the uvula to the left on phonation. The deep tendon reflexes were slightly more active on the right. An electroencephalogram revealed bilateral delta wave activity with some left sided preponderance. On admission to the University Hospital the neurologic examination was similar to that previously recorded. In addition, a right sixth nerve weakness and a left extensor toe sign had developed. Bilateral carotid arteriography and ventriculography were not diagnostic. The ventricular fluid was xanthochromic and the white cell count was 774, all of which were interpreted as lymphocytes. Repeat arteriography was interpreted as normal. The patient expired on the 23rd hospital day.

Cytologic examination of the ventricular fluid revealed multiple clumps and sheets of small neoplastic cells. Two repeat studies confirmed the findings. The cells were thought to be from an ependymoma but autopsy revealed a circumscribed arachnoidal sarcoma arising from the anterolateral edge of the left cerebellar hemisphere. In this case the presence of a neoplastic process was detected, although its cellular type was not properly identified. Retrospective study of the diagnostic X-rays fail to reveal any clue to the presence of a tumor.

### Summary

The cytologic study of the spinal fluid in cases of suspected primary or secondary tumors of the central nervous system has a definite place as a diagnostic aid. It cannot be expected to produce diagnostic results in those tumors lying deep in the brain substance. Those tumors which come into contact with the

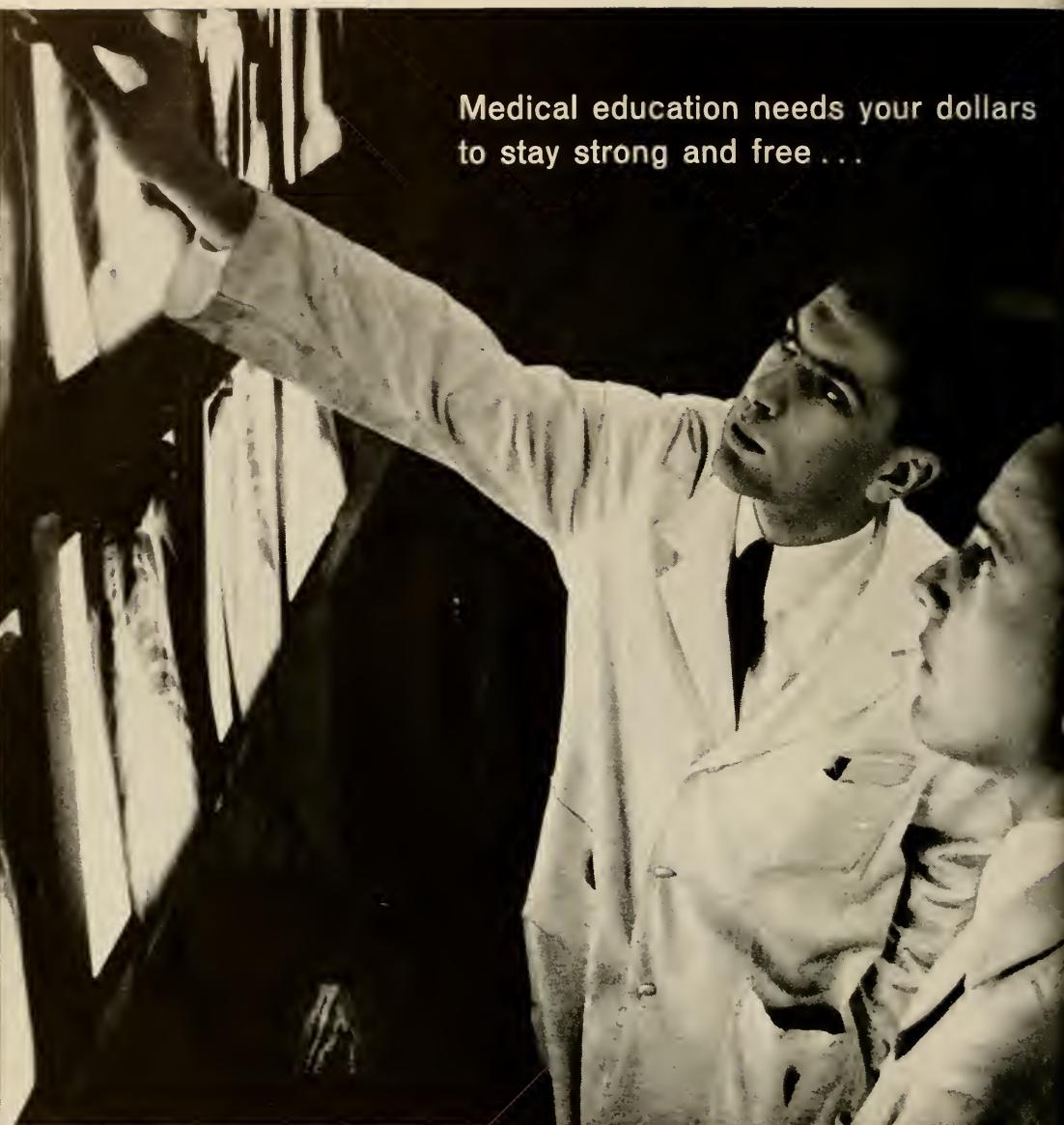
spinal fluid will yield recoverable cells. When used in conjunction with the already available diagnostic methods this technique may be of particular value in separating primary from metastatic neoplasms or in making a diagnosis where other methods have failed or have been inconclusive. It should be emphasized that the method is not a substitute for histologic confirmation by biopsy. An illustrative case is presented.

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The authors wish to thank Dr. Zuher M. Naib and Dr. M. Wilson Toll for their help, encouragement, and advice. The technical assistance of Mrs. Geneva G. Lord and many others was invaluable. The full cooperation of the Department of Neurosurgery is also gratefully acknowledged.



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## MEDICAL SCHOOL SECTION

# Dean's LETTER

*Dear Members of the Alumni and Friends of  
the Medical School:*

During the school year 1963-64 the Faculty Curriculum and Instruction Committee has continued to study our educational program for the medical student. These studies have resulted in some modification and adjustment of the teaching by individual departments. However, the most important recommendation of the Committee, which has been adopted by the Faculty Board for 1964-65, is an increase in free time for the student to select areas of study centered on the student's interest. This changes the medical education program from a lock step faculty dictated program to a program of basic medical education enriched by areas in which the student has special interests in depth.

A real measure of the maturity of our students will be obtained by objective evaluations of how well the students use their free time to develop themselves into outstanding physicians. The students are thus being challenged to demonstrate their ability and resourcefulness for careers in medicine.

Sincerely,

WILLIAM S. STONE, M.D.

*Dean*

# Pre-commencement and Dean's Day Celebrated June 2

IN HONOR of the graduating Class of 1964, the customary annual Dean's Day and pre-commencement exercises were celebrated on the campus beginning with an academic procession at 1:30 p.m.

Following the invocation by the Reverend Donald C. Kerr, Pastor of Roland Park Presbyterian Church, Dr. R. Lee Hornbeck, Vice-President of the University of Maryland for academic affairs, extended greetings to the graduating class. Prizes and honors were then awarded by Dr. William S. Stone, Dean of the School of Medicine. This was followed by the customary Hippocratic Oath.

## Dr. Paul Sanazaro, Principal Speaker

Prior to the presentation of the awards, Dr. Paul Sanazaro, Director of the Division of Education of the Association of American Medical Colleges, spoke on the subject, "Revolution and Renewal in Medicine." The complete text of Dr. Sanazaro's article is published elsewhere in the BULLETIN.

Honors and prizes were as follows:

Faculty Gold Medal (*Summa Cum Laude*)—CHARLES HENRY ASPLEN

Certificate of Honor (*Magna Cum Laude*)—RICHARD DOUGLAS BIGGS, JR.

Certificates of Honor (*Cum Laude*)—DONALD THEODORE LEWERS, MILTON SIEGFRIED MICHAELIS, CHARLES EVANS RECKSON, MARVIN FREDERICK SAIONTZ, and HAROLD CLARK STANDIFORD

Balder Scholarship Award for highest degree of academic achievement—CHARLES HENRY ASPLEN

Dr. Leonard M. Hummel Medal for excellence in Internal Medicine—DONALD THEODORE LEWERS

Dr. Harry M. Robinson, Sr. Prize for excellence in Dermatology—MARVIN FREDERICK SAIONTZ

Dr. Wayne W. Babcock Award for excellence in Surgery—JONATHAN DAVID TIEPK

Dr. A. Bradley Gaither Prize for excellence in genito-urinary surgery—CHARLES EVANS RECKSON

Medical Book Award for outstanding scholastic attainment—STUART HANDWERGER, RUTH ELIZABETH LUDDY, and ROBERT ELMER STONER

Student Council Keys—RICHARD JOHN KELLY, JOHN MANFRED RATINO

Student Council Certificates—HENRY HUBERT BOWMAN, WILLIAM GREEN CUSHIER, RICHARD JOHN KELLY, ALBERT BERNARD PLEET, JOHN MANFRED RATINO, MARVIN FREDERICK SAIONTZ, ERIC DEAN SMITTER

Following the exercises, tea was served in Howard Hall, with wives of the medical students acting as ushers and hostesses.

## Commencement

On Saturday, June 6, at commencement exercises held at College Park, degrees of Doctor of Medicine were conferred by Dean Stone on the members of the Class of 1964. These newly created Doctors of Medicine then departed for vacations prior to beginning the practice of medicine through their internships.

## Internships—Class of 1964

AMITIN, SIGMUND A.

*South Baltimore General Hospital, Baltimore, Md.*

ASIMAN, MICHAEL N.

*Jewish Hospital, Brooklyn 38, N. Y.*

ASIMAN, PHILIP M.

*Harrisburg Hospital, Harrisburg, Pa.*

ASPLEN, CHARLES H.

*University Hospital, Baltimore 1, Md.*

BAKER, LYNN B.

*University Hospital, Baltimore 1, Md.*

BECKER, LARRY

*Sinai Hospital, Baltimore 15, Md.*

BELINIC, MONA B. S.

*Mercy Hospital, Baltimore 2, Md.*

BIGBEE, THOMAS P.

*South Baltimore General Hospital, Baltimore, Md.*

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*University Hospital, Baltimore 1, Md.*

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*Montefiore Hospital, New York 67, N. Y.*

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*Mercy Hospital, Baltimore 2, Md.*

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*Sinai Hospital, Baltimore 15, Md.*

COHEN, MIRIAM L.  
*Union Memorial Hospital, Baltimore 18, Md.*

COLON, GUSTAVO A.  
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*Mount Sinai Hospital, New York 29, N. Y.*

LEE, CHARLES D., JR.  
*Passavant Memorial Hospital, Chicago 11, Ill.*

LEWERS, DONALD T.  
*University Hospital, Baltimore 1, Md.*

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*University Hospital, Baltimore 1, Md.*

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*University Hospital, Baltimore 1, Md.*

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ROBBINS, E. LEE  
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SAINTZ, MARVIN F.  
*Sinai Hospital, Baltimore 15, Md.*

SCHMITTER, ERIC D.  
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*Grace New Haven Hospital, New Haven 4, Conn.*

SCHWARTZ, WILLIAM E.  
*Mercy Hospital, Baltimore 2, Md.*

SEIDMAN, SIDNEY B.  
*Sinai Hospital, Baltimore 15, Md.*

SHELTON, PERRY S.  
*Mercy Hospital, Baltimore 2, Md.*

SHUGARMAN, RICHARD G.  
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*Sinai Hospital, Baltimore 15, Md.*

SPECTOR, GERSHON  
*Beth Israel Hospital, Boston 15, Mass.*

STANDIFORD, HAROLD C.  
*University Hospital, Baltimore 1, Md.*

STONER, ROBERT E.  
*University Hospital, Baltimore 1, Md.*

TUERK, JONATHAN D.  
*University Hospital, Baltimore 1, Md.*

WEAGLY, JOHN K.  
*South Baltimore General Hospital, Baltimore, Md.*

WEIR, WALTER D.  
*South Baltimore General Hospital, Baltimore, Md.*

WILSON, SHERWOOD E.  
*South Baltimore General Hospital, Baltimore, Md.*

YALAM, ARNOLD R.  
*Jackson Memorial Hospital, Miami 36, Fla.*

YOUNG, MARSTON A.  
*St. Agnes Hospital, Baltimore 29, Md.*

**School of Medicine Affiliated with Eye Research Foundation**

AN AFFILIATION between the University of Maryland School of Medicine and the Eye Research Foundation, Bethesda, Md., was recently announced jointly by Dr. William S. Stone, Dean of the School of Medicine, and Percy J. Trevethan, President of the foundation.

Under the terms of the affiliation organized chiefly for the purpose of teaching and research, the Medical School's Department of Ophthalmology, headed by Dr. Richard D. Richards, will work closely with the foundation. Ophthalmology residents will be sent to the foundation for training in basic and clinical research problems and senior investigators at the foundation will be eligible for faculty appointments in the Medical School.

Dr. Richards has been named a member of the Scientific Council of the Eye Research Foundation and Dean Stone, a member of its Advisory Board.

The Eye Research Foundation is a nonprofit organization set up under a trust fund some six years ago for pioneering studies of such conditions as minimal vision cataract, glaucoma, and cancer of the eye. It now occupies a new \$600,000 building near the National Institutes of Health in Bethesda. Dr. William M. Hart is director of the foundation, which is supported by private donations and grants-in-aid of research.

**Campus Computer Center To Be Developed at School of Medicine**

THE SCHOOL OF MEDICINE has recently been awarded a grant from the National Institutes of Health to support the establishment of a Health Sciences Computer Center on the Baltimore campus.

The grant, totaling \$296,883, will help support the center over a 27-month period.

The computer, which will be located

on the first floor of Howard Hall, is scheduled to begin operation in the fall of 1964. Equipment, designed particularly for health problems, will include an IBM 1620 digital computer with an IBM analog to the digital system. The center will also include other supporting equipment.

The instrument installed on the Baltimore campus will serve as a branch of the Computer Science Center at College Park, with complete compatibility of all computer equipment. A courier service will be established, serving to facilitate the transmission of magnetic tape and IBM cards to and from the main Computer Center at College Park.

According to Dr. George Entwistle, the facilities will be available on an inter-departmental basis. Already plans are underway for complex analyses of data obtained in the air pollution studies under the direction of the Department of Medicine.

Based on an analysis of a large group of patients, the Department of Radiology proposes to use the instrument as a means of calculating appropriate doses of radiation at different depths for different types of tumors. In Psychiatry, projected use of the apparatus will relate to a correlation of complex data relating to verbal behavior. It is anticipated that the instrument will be of great assistance in the many complex analytic problems relating to research in Medicine and allied fields.

## Dr. Spicer Receives Additional Air Pollution Grant

DR. WILLIAM S. SPICER, JR., head of the Division of Pulmonary Diseases, has received a supplementary award of nearly \$200,000 from the U. S. Public Health Service to support a continuation of his studies of the relationship between air pollution and pulmonary diseases. Dr. Spicer, whose previous investigation has shown a relationship between air pollution and lung disease, will now expand his program to include the effects of smoking as well as air pollution on lung diseases.

## Dr. Storey to Head A.M.A. Postgraduate Program

THE AMERICAN MEDICAL ASSOCIATION has announced the appointment of Dr. Patrick B. Storey, former faculty member at the School of Medicine, as Director of the A.M.A. Department of Postgraduate Programs. Dr. Storey, who has headed the School of Medicine's postgraduate program since 1960, will head the A.M.A. program designed to place before the 271,000 physicians of the country a realistic program of continuing medical education.

Known until recently as the Department of Scientific Assembly, the department in the past has been primarily concerned with organizing the scientific programs at the annual A.M.A. meetings.

# Faculty NOTES

DR. EPHRAIM T. LISANSKY, Associate Professor of Medicine and Clinical Psychiatry at the School of Medicine, has recently been director of a course entitled, "Psychiatry for the Internist," a five-day postgraduate course approved under the auspices of the American College of Physicians and held at the School of Medicine June 15 to 19. Other faculty participants in the course included Dr. Russell R. Monroe, Professor of Psychiatry; Dr. Eugene B. Brody, Professor of Psychiatry and director of The Psychiatric Institute; Dr. A. Russell Anderson, director of the Baltimore Psychoanalytic Institute and Associate Clinical Professor of Psychiatry; Dr. Samuel P. Asper, Jr., of Johns Hopkins University; Dr. Leo H. Bartemeier, medical director of the Seton Psychiatric Institute and Clinical Professor of Psychiatry at the School of Medicine; Dr. William S. Stone, Dean; and Dr. Theodore E. Woodward, Professor of Medicine.

Dr. Lawrence Earl Hinkle, Professor of Clinical Medicine at Cornell University Medical College, spoke on the relationship between social and psychological stress and such illnesses as peptic ulcer and coronary thrombosis. His specific topic was "Human Ecology in the Occurrence of Disease."

DR. SAMUEL P. BESSMAN, Professor of Pediatrics Research, participated in a Congress on Mother and Child Health in Warsaw, Poland, June 22 to 28. Dr. Bessman delivered a lecture entitled, "The Role of Ammonia in Normal Metabolism and Disease."

DR. VERNON B. KRAHL, Professor of Anatomy, presented the opening paper

at the Third European Conference on Microcirculation held in Jerusalem, Israel, March 15 to 19, 1964. Dr. Krahl's paper on pulmonary microcirculation in the frog was written in collaboration with Dr. Hollis G. Boren, director of the pulmonary research laboratories of the Trudeau Foundation, Saranac Lake, N. Y.

Dr. Krahl received a National Institutes of Health research career award in 1962, one of several granted in nationwide competition to investigators of proved ability in independent research and teaching.

## Promotions Announced

Dr. Theodore Leveque of the Department of Anatomy has been recently promoted to Professor of Anatomy in the School of Medicine.

In the Department of Pathology, Drs. Peter Rasnussen, Wilson Tall, and Charles S. Petty (Forensic Pathology) have been promoted to the rank of Associate Professors.

In the Department of Preventive Medicine, Dr. Maureen M. Henderson has been promoted to the rank of Associate Professor.

In the Department of Psychiatry, Dr. Isadore Tuerk has been elevated to Assistant Clinical Professor of Psychiatry.

Dr. Thomas C. Flotte of the Department of Surgery has also been named Associate Professor of Surgery.

New appointments include Dr. Harley V. Barrett as Associate Professor of Preventive Medicine and Rehabilitation.

## Faculty Members Contribute to New Cecil's Textbook of Medicine

DRS. FRED R. McCURB, JR. and THEODORE E. WOODWARD are among the 173 contributors to the 11th edition of the Cecil-Loeb Textbook of Medicine.

# Revolution and Renewal in Medicine

PAUL J. SANAZARO, M.D.

THE UNIVERSITY OF MARYLAND SCHOOL OF MEDICINE is an old school by American standards, having been organized in 1807. Even though quite young when measured against 5,000 years of medical history, your school shares in full the spirit of rich heritage which is unique to medicine. Over the years, its many innovations have kept the school at the forefront of medical education. And, like all venerable institutions, Maryland has recorded its proud history, giving us a unique glimpse into its past. A sketch of student days by a graduate of the class of 1830 strikes familiar notes: "I had to sit constantly for eight hours every day during four months on a hard bench attending medical lectures. I would not undertake the task again with similar health for any honor or emolument that I could derive from it. It left me unable to move." Certainly a graphic description of a state keenly remembered by all medical students. Even though lectures no longer last for eight hours, they occasionally seem to. In describing his final examination the articulate graduate of 1830 speaks for you today: "I passed my examination on the fifth of March. It was a most trying ordeal. My character was involved and with it my peace, for you know my pride could not well endure a rejection." Finally, he described this ritual in which medicine is annually replenished: "Then a month later came the commencement with its triumphs . . . I received my diploma in company with the other 50

graduates on the fifth of April. They were handed to us by the Provost in the anatomical theater of the University in the presence of the most beautiful and fashionable assembly of ladies and gentleman I ever saw. In the meantime, the city band played the most delightful airs. A professor of *materia medica* delivered a valedictory oration in which he gave many useful hints to the graduates on the course it was now necessary for them to pursue in order to succeed in their career." Every class of graduating students must experience this same mixture of euphoria, release, and resignation to the exhortatory address.

Your education, received at the same school as our spokesman for the past, has been far different, for medical education and the University have shared both the continuing revolution and renewal that are the hallmarks of medicine. The Oath of Hippocrates defines that point in medical history where revolution and renewal were first inseparably linked, for the Hippocratic school supplanted mysticism with reason and ritual with the forerunner of the experimental method. Hippocratic medicine was holistic, considering illness as inseparable from the patient's distress. Physicians did not then concentrate on "the disease" because the concept of disease as an entity lay 20 centuries in the future. It is one of the quirks of history that a contemporary of Hippocrates—Democritus—should be the first to suggest that all matter might be composed of indivisible particles which he called "atoms" and that ultimately all substances—including people—might be analysed in terms of their constituent atoms. This

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Director, Division of Education, Association of American Medical Colleges, 2530 Ridge Avenue, Evanston, Illinois.

philosophical concept foresaw the day when the symptoms and signs which Hippocrates so carefully observed and recorded would be analysed on a molecular, even atomic, basis. Today, atoms and portions of atoms, as electrolytes, isotopes and radiation, are essential in the study, diagnosis, and treatment of disease. This is the incredible revolution in medical science, encompassing 23 centuries, transforming descriptive, empirical, holistic medicine into human biology. Throughout the uneven course, it has ever been the renewal of the Hippocratic ethic that has preserved for you the opportunity you now have earned to serve and contribute as an appropriately educated physician, rather than as a technician or an entrepreneur.

The responsibility placed on today's medical schools is unusually demanding. It has required the resources, standards, and ideals of the University to prepare you to use the best lessons of the past, to be discriminating in your choice of future lessons, to continue to grow in knowledge and skill, to contribute to medical science—all of this so that you may serve society fully and wisely. It can be argued without too much violence to fact that medicine today is the final common pathway of all historical revolutions (including the scientific, industrial, technologic, social, and religious) that have shaped man's relation to man and to society over the past five centuries. Their cumulative effects are uniquely focused upon the very personal encounter between patient and physician. It has been the continuing renewal of basic ethical principles by each generation of physicians, rather than the advance of science or rise in social standards, that has preserved medicine as a true profession in the fullest sense of the word. An earlier form of the Hippocratic Oath than that to which

you have subscribed epitomizes this renewal:

I will follow that system of regimen which, according to my ability and judgment, I consider for the benefit of my patients, and abstain from whatever is deleterious or mischievous.

Note the cardinal principles of a professional commitment: regimen is to be based on the individual physician's ability and judgment, not on adherence to fixed rules. The intended result is the benefit of patients. There is specific disavowal of all measures that are in themselves injurious or "mischievous."

What of the physician's "ability" today, compared with that of Hippocrates? You have at hand the weapons for preventing diseases that once decimated nations. You can now cure or control disease or suffering by a telephoned prescription. Science has taken Hippocrates' concept of the humors and provided you with potent hormones and drugs to control and modify basic body mechanisms. Surgery has moved from a mechanical to a physiological base, enabling it to deal with hereditary or acquired conditions in almost every organ system. This era of molecular biology has made a reality of the ancient dream of organ transplantation. And it is taken for granted that pills are available to all at the corner drug store that with delightful precision eliminate only procreation from all other functions of the most basic human interaction.

All this indicates that the physician has changed his role in the struggle against death, disease and undesired consequences. He is no longer limited to comforting the ill; he is an active intervener possessing a vast array of effective biochemical and physical tools. These in turn are the practical result of applying the scientific method to the study of

human disease by considering the body as a machine, or at least an analysable biological complex. Without for the moment debating whether man is or is not a machine, it is historical fact that this assumption, and research based on this assumption, has given medicine a firm and enduring scientific base. And it is this which endows you as physician with therapeutic potency beyond the visions of even the most visionary of past generations.

But these exciting advances at the same time raise perplexing ethical questions. Medical ethics are not simply acceptable business practices. The professional ethics of medicine are rooted in basic morality because the physician is entrusted by society to deal with human problems and human life in a manner permitted no other individual by law or tradition. An abiding sense of ethics cannot be acquired as readily as knowledge of the latest concept of DNA coding, and although morality in its fundamental sense does not change over time, the combination of social evolution and continued scientific advances creates new situations requiring fresh ethical interpretation. Knowing the concern of the University of Maryland that its graduates should be prepared both to advance knowledge and to uphold the heritage of medicine, you have already had opportunity to begin your lifelong task of exploring the ethical challenges to your generation.

Consider some examples. Research in medicine today requires human experimentation. Ideally, human experimentation should only proceed with the full and informed consent of the patient. But although this is the position demanded by fundamental moral values, a number of practical and legal considerations have kept the medical profession and the research community from generally endors-

ing such a code. But if full and informed consent is not mandatory for all experiments on patients, what is the appropriate compromise? Which are to be the guiding principles? The controversy may be illuminated by asking, is it for the benefit of *medical science* or for the benefit of the *patient* that our ability and judgment are to be used in conducting human experimentation?

The enticing nearness of further breakthroughs makes it seem to some a small and reasonable price that not all patients know in full what is required of them or what the immediate or delayed consequences might be. For example, greater applicability of organ transplantation awaits more effective means of inducing tolerance by suppression of the immune mechanism. All of us can enumerate the potential blessings of eliminating cumbersome medical procedures for dealing with end-stage organ damage and instead restoring function by organ replacement or organ augmentation. To watch a sickly child who has never known a single day of comfort or well-being be transformed by an organ transplant into an exulting boy who now runs and plays can only make us impatient with the slowness of progress. But what are the long-term consequences of suppressing such a fundamental system as the immune mechanism in a young person? How can one, on ethical grounds, proceed with the large scale human experimentation needed to satisfy the requirements of the experimental method, yet adequately inform the patient or his parents of the potential consequences, many of which are largely unknown? Is it the prerogative of the physician-scientist to make these judgments for the patient? How will you propose to resolve this means-and-ends dilemma?

There are less dramatic but no less complex situations in which the physician

can permanently modify basic physiologic functions. This enormous and steadily increasing potency must be directed by a continuing and growing sense of personal moral responsibility for the human consequences. For example, your generation may well be the first to manipulate or attempt to manipulate the genetic components in living man. What considerations will enter into your first such experiment on a human being? Will they be primarily scientific, or primarily ethical?

To paraphrase John Gardner, knowledge is a safe weapon only if it is linked to a deeply rooted conviction that medicine is for the benefit of men and not men for the benefit of medicine. The research scholar has the inviolate freedom of the academic community to advance knowledge for the sake of knowledge. However, what *can* be done in research on man does not in itself justify its *being* done on man. Unlike the challenge to the mountain climber, an unsolved problem in man is not to be studied just "because it is there." The answers to *whether* an experiment should be done and *how* it should be done always derive from ethical principles. This is the continual renewal to which you as physicians are called.

There are other aspects of medicine which require ethical analysis. As physicians, each of you will prolong the productive lives of your patients. Not only that, you will make possible their enjoyment of life beyond the time when they no longer need to be economically self sufficient. (This achievement is perhaps less a tribute to medical science than it is to the industrial and social revolution.) Scientific medicine also makes possible survival of the elderly individual despite the progressive ravages of chronic diseases which as yet defy cure or preven-

tion. Your weapons are such that you will be able to comfort and give hope to an extent undreamed of even a short generation ago. Modern scientific medicine, however, goes further: it makes possible survival of the individual not only beyond the point of personal productivity, beyond the point of self-care, but even beyond the point of consciousness or awareness of self as a person. This power over potentially lethal states is applied not only to the aged population, but to those of any age who have severe irreducible brain damage of whatever cause. Modern medicine now makes possible the survival of tens of thousands of severely handicapped children. These fellow human beings in unprecedented numbers will require continuing special care. Will they receive relatively less care than other fellow human beings who are potentially self-sufficient? Should they receive less? Or, at this stage of our culture, is any human being entitled to the best that medicine can offer?

What of the millions of citizens who are culturally and financially deprived? How is the benefit of modern medicine to be brought to them? Shall we as physicians wait for education to raise them to economic and social self-sufficiency? What is our obligation as physicians to act to bring the benefits of medical care to all who require it? Is the practice of medicine primarily an economic privilege? Or is it primarily a social obligation? I doubt that we could set down workable answers to these questions this afternoon, but I sincerely hope we do not disagree that the basic ethic of medicine which you have here today renewed calls upon you to involve yourself in the solution of such problems according to your "ability and judgment" and for the benefit of all patients.

A second form of renewal is also im-

plied in the Hippocratic Oath, and that is the maintenance of professional competence throughout your career. It seems strange to speak of maintaining competence when each of you feels that most of your clinical education lies ahead of you in internship, residency, and fellowship. Yet, today is a watershed in each of your personal, professional histories, and from this day forward your individual careers will take different paths determined in part by chance, by circumstances, but in greatest measure by your voluntary choices.

Those of you who have read Aldous Huxley's novel entitled *Island* will recall that on the island there are voices continually calling out, "Here and now, boys" and "Attention, attention." The inhabitants trained myna birds to speak these words as a program of preventive psychotherapy. "Attention" to the "here and now" is the basis for resolving problems and questions as they arise. This prevents the slow, massive accumulation of unfulfilled good intentions. One of the major functions of your education at the University of Maryland has been to focus your attention on the here and now of good medicine and medical science. But from this point forward, there will be fewer and fewer individuals to say to you, "Here and now, attention." Each of you will have to develop your own reminders and activator mechanisms. As physicians you are deprived of luxury fully enjoyed by most others: that of postponing decisions and actions. When the patient calls you, it is a here-and-now situation in which he expects not only the best you have to offer, but also that your best will not be less than the best. Your social contract therefore requires the regular renewal of your ability and knowledge.

As is evident, medical schools assume

responsibility for preparing future physicians who will contribute to the revolution of knowledge, recognize and abide by the need for ethical renewal, and engage in lifetime learning. The attempt to achieve these goals has led to a small scale revolution in the concepts of medical education. This is exemplified by the continuing intensive study of its program by the University of Maryland. Education is shifting its emphasis from content to process. We no longer believe that mastery of the traditional curriculum in medical school is an adequate basis for 40 years of productive service. Rather, it is the continuing process of education as undergone by each individual, first as a student, later as a physician, that is of prime importance. In order to gain better understanding of this process, the intellectual and non-intellectual characteristics of medical students have been intensively studied.

Diversity in student bodies has become a by-word. (Liberty, fraternity and diversity is the current slogan.) There is growing awareness and appreciation of the diverse talents and interests students bring to medicine, because medicine is enriched by these. But ultimately diversity encounters and must accept stringent limitations. The scientist-investigator in medicine cannot establish his own rules. To achieve recognition, he must produce creditable research in accord with established standards. The physician has a wide choice of careers, but having chosen he is no longer free to exhibit diversity in standards of practice or ethics.

One of the provocative conclusions which is emerging from studies of medical education is that the most important objective is not the acquisition of a body of information or set of skills, but rather the development of appropriate attitudes and values. More specifically, the set of

values you brought to Maryland and refined while here will in larger measure than your innate ability or present knowledge determine your ultimate contribution as physician or scientist. It is in accord with these values that you have given relative weights to the practical considerations influencing your choice of internship. Similarly, your scale of values will affect your choice of residency and its duration. Studies of the full-time practicing physician who offers general care to his patients reveal that, ten years after graduation, his concept of responsibility and the number of years of residency training after internship are the factors that correlate positively with the calibre of his performance.

Studies of physicians by behavioral scientists substantiate what we all suspect, namely that a physician is no superman. He is all too human, though happily endowed with such abnormal characteristics as high intelligence, inordinate capacity for achievement, far more interest in science and far less concern with financial gain than the average college graduate. He performs regularly at the highest level of competence in two specific circumstances: First, when he practices in an environment in which high standards are expected and maintained, and, second, when he has a highly developed sense of viewing his patients as persons and views his responsibility to them as an *obligation* to provide the best possible appropriate medical care.

Medical education is drawing upon the techniques of the social and behavioral sciences which are necessary and useful in the analysis of the educational process. Moreover, they are essential for the study of the heart of medical practice, which is patient care. In the past, and in large measure still today, the brilliant advances of medicine have generally been equated with the actual receipt of full benefits

from these by the public. But there is growing interest in measuring the discrepancy between actual and ideal practice, in developing the capacity to assess the extent to which the potential benefits of medical service are realized in fact. Such research will eventually make possible the systematic and objective determination of the quality of patient care.

Historically, it has been the prerogative of the medical profession to determine optimum standards of practice on the basis of professional judgment. The notion of external monitoring is repugnant, because only the physician can or should determine what is medically correct. Nonetheless, the objective study of the consequences of treatment in no way infringes on his professional prerogative. One hundred years ago, reputable physicians in leading medical centers were convinced on the basis of their extensive personal experience that blood-letting was beneficial to patients ill with pneumonia. It required the statistical analyses of Professor Louis to demonstrate convincingly and for all time that blood-letting reduces the chances of survival. Unfortunately, I must tell you that this same conclusion had been equally firmly established 22 centuries earlier by a renowned Greek physician.

The plain fact is that the potential and potency of modern therapeutics, whether preventive or curative, make it increasingly important that there be objective means of assessing the results of treatment. Quality control of medical care is the legitimate responsibility of the physician. Now his personal judgment in this will be augmented, just as modern laboratory procedures augment his judgment in diagnosis. Society has invested huge sums of money in medical research; it has an understandable interest in our assurance that there is fair return on the investment.

There are important educational reasons for expediting this development. The major purpose of your medical education has been to prepare you for your future role in providing care. The appropriateness and soundness of your education is measured therefore not by your knowledge and skills as such, but by the quality of care your patients will receive at your hands. Without objective measures of the care actually received we can only make general judgments as to the effectiveness of modern medical education, and today it is too expensive, too complex, and too important to be guided by rough judgments. Medical schools will actively promote research in the quality of patient care. This will have the same influence on future students as does ongoing biologic research, elevating their expectations and providing incentive for the exploration of new fields. The results of such research will provide essential feedback to physicians, hospitals, and medical schools.

In the course of your career you will profit from the closer working relationships which will develop between schools of medicine and the practicing physician. Medical centers will form educational networks with outlying hospitals and health centers for the education of interns and residents and postgraduate instruction of physicians. In this way, the learn-

ing resources of the medical center will be more equitably distributed among all physicians. As physicians in practice you will have in the near future a more explicit obligation to improve your self-education above and beyond reading medical books and journals, attending hospital and medical society meetings, courses, and annual meetings of professional associations. Work has already begun to develop carefully designed educational programs which will expedite your acquiring the latest information, refining or acquiring new skills, without undue sacrifice of time from your practice. You will have available to you both the effective means of learning the latest developments and of realistically testing yourself on your new knowledge and competence. This will be your personal "lifetime learning."

As you see, you are the inheritors of these many revolutions in medicine and of the ethical obligation to channel these for the benefit of patients. It must seem whimsical or even farcical to an outsider that an ancient oath should be given such prominence by a school attesting to the continuing productive revolution in medical science. But on behalf of your future patients, I rejoice with you in this, your first personal renewal.

2530 Ridge Avenue  
Evanston, Illinois

# ABSTRACTS

of articles by  
faculty and alumni

**Iron Metabolism in Premature Infants (I. Absorption and Utilization of Iron as Measured by Isotope Studies)**—Martin K. Gorten, Ray Hepner, and Joseph B. Workman, M.D.  
*J. Pediat.* 63:1063, 1963

Fourteen healthy premature infants ranging in age from one to ten weeks were given one microcurie of iron-59 incorporated in the usual formula and later analyzed for absorption and utilization rates. Seven infants were given the iron-containing formula and the remainder were fed an iron-free formula prior to the administration of a test dose. An iron load of 325 to 1,025 micrograms of elemental iron was given with the isotope.

Absorption of iron-59, ranging from 6.8 to 74.0% (mean 31.5%), was found to be inversely related to the quantity of stable iron in the load and to be unaffected by previous gastrointestinal exposure to iron.

A correlation between tagged iron absorption and growth rate was demonstrated. The course of absorbed isotopic iron was traced by surface counting of internal organs and blood sampling. A concentration of activity was found over the sacrum, spleen, and liver at 48 to 72 hours.

Incorporation of iron into hemoglobin calculated from the iron-59 activity in the blood displayed a wide range with a mean of 15.3% of the quantity of iron in the test dose. The amount of iron utilized in blood formation correlated significantly with growth rate. The severity of anemia and degree of erythropoietic activity appeared to affect positively the immediate utilization of absorbed exogenous iron.

Premature infants absorb and utilize iron at a greater degree during the first ten weeks of life than in later infancy and childhood.

**Multiple Lipoidal Histiocytomas with Regression**—Harry M. Robinson, Jr., Louis E. Harmon, and Harlan I. Firminger.  
*Arch. Dermat.* 88:660, 1963

The case history and postmortem findings of a 47-year-old Negro female with numerous cutaneous nodules are reported.

The lesions characteristically passed through proliferative, granulomatous, xanthomatous, and healing phases.

The term "lipoidal histiocytoma" would seem preferable for this condition.

The features indicate a type of histiocytoma which has the ability to phagocytose lipids yet later undergo regression with reticulum and ceroid formation.

**Tracer and Non-Tracer Potassium Fluxes in Frog Sartorius Muscle and the Kinetics of Net Potassium Movement**—R. A. Sjodin and E. G. Henderson.  
*J. Gen. Physiol.*, 47:605, 1964.

Experiments were performed to test the applicability of permeability kinetics to whole frog sartorius muscle using  $K^{42}$  ions as tracers of potassium flux. The whole muscle was found to obey closely the kinetic laws expected to hold for single cellular units in which the potassium fluxes are membrane-limited and intracellular mixing is rapid enough not to introduce serious error. In a 5 mM K Ringer's solution, potassium efflux was very nearly equal to influx when the rate constant for  $K^{42}$  loss was applied to the whole of the muscle potassium. Over a fairly wide range of external potassium concentration, the assumed unidirectional fluxes measured with tracer  $K^{42}$  showed good agreement with net potassium changes determined analytically. The specific activity of potassium lost from labeled muscles to an initially K-free Ringer's solution was measured as a test of the adequacy of intracellular mixing. The results were those expected for a population of cells with uniformly distributed intracellular  $K^{42}$ . A small deviation was encountered which can be attributed either to a dispersion of fiber sizes in the sartorius or to a possible small additional cellular compartment in each individual fiber. The additional cellular compartment, should it exist, contains from 0.5 to 1 per cent of the muscle potassium. This is evidently not large enough to interfere seriously with the applicability of permeability kinetics to the whole muscle.

sible for any success the Association achieves. It is this group that needs to be greatly increased in numbers and work expended and would if only our Baltimore and nearby Medical Alumni would offer their services.

Next, I wish to pass on a few thoughts about our first Maryland Medical Reunion Day. Generally speaking, I believe this day went very well, and this was to be expected after all the careful planning and effort that was put forth. The extremely interesting and thrilling talk by Dr. David Dingman made us all realize we are handing the torch of medical practice to young men, who are not only intrepid and daring, but have the stamina and know-how to tackle any problem.

The highlight of the day was the presentation of the Honor Award and Medal to Dr. Hugh R. Spencer, who received an outstanding and prolonged ovation that was well deserved. Following this event, a luncheon was served which helped everyone to mix, renew old friendships, and make new acquaintances in the environment of the John Eager Howard Building. The scientific sessions were numerous and varied enough to suit the interests of all, and emphasized many new facets of medical progress.

We have learned much from the happenings of this day, and with the correction of our deficiencies and mistakes the next meeting should be more successful. Your constructive criticisms and suggestions will be most eagerly accepted, considered, and incorporated into future plans.

The banquet, opened by an inspiring invocation by the Rev. Osborne R. Littleford, climaxed the day with a very good attendance. Our fifty year graduates were awarded appropriate certificates and properly recognized. The class of 1964, whose members and their ladies were guests of the Medical Alumni Association, was introduced and Mr. Marvin Saiontz, the president, responded. Then followed the speaker of the evening, Dr. Jack C. Norris of Atlanta, Georgia. Good food and drink contributed to the activities of the night which ended with a dance.

Please remember that it was Dr. George Yeager, my predecessor, who laid the foundation of the first Maryland Medical Reunion Day, and that it was planned in a most commendable manner by Dr. Edward F. Cotter and his Hospital Association delegates, especially Dr. Arlie Mansberger.

Thanks are likewise due Dr. William Triplett and Mrs. Girkin for their efforts on behalf of the Medical Alumni Association, and Dr. Howard B. Mays, the Treasurer, for his advice and aid. Mrs. James G. Arnold and her committee are to be heartily congratulated for such an outstanding Ladies' Day. Dr. J. Morris Reese's contribution to the Day was obtaining the banquet speaker.

Special thanks must be given to Dr. William Stone, Dean of the School of Medicine, and Dr. Theodore Woodward, Professor of Medicine, for their fine cooperation, moral support, and encouragement. There are many others to whom we all owe a great indebtedness for their efforts in making this Day a success.

In conclusion, I wish to extend my heartiest congratulations and best wishes for a most successful year to Dr. J. Howard Franz, your new President. This physician combines the qualities of an excellent doctor, an outstanding leader and organizer, a good business man, and above all a Christian gentleman. Altogether he should be a most eminent President, and bring to this office nothing but exceptional achievement. For my part, sincere thanks for the privilege of serving as your President for the past term, and my deep appreciation to each and every person who has helped in the execution of my duties.

GIBSON J. WELLS, M.D.  
*President*

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## Student Loan Fund Report

DR. WILLIAM H. TRIPLETT, Executive Secretary to the Medical Alumni Association, reports that total contributions to the Alumni Student Loan Fund during the fiscal year 1963-64 amounted to only \$330.00.

Loans in the amount of \$800.00 were made during this same period.

The Alumni Association believes the Student Loan Fund to be a very worthy endeavor, with contributions to the Fund being used exclusively for students at the School of Medicine. The first loan, made in 1959, has already begun to be repaid. Until such returns from the Fund are received, it is impossible to offer students additional loans. The Fund is in dire need of immediate and substantial support. Inquiries should be made to Dr. William H. Triplett, Executive Secretary, Medical Alumni Association. Contributions to the Fund are tax exempt.

# Alumni Day 1964

FOR THE FIRST TIME, a combination of the Medical Alumni Association's annual meeting with the biannual meetings of the Surgical, Medical, Obstetrical and Gynecological, and Pediatric Societies took place on the campus, May 7, 1964. Individual programs mailed to all Alumni and former house officers of the University Hospital included a very fine and liberal scientific program interspersed by business meetings and entertainment.

Friday, May 8, 1964, was Medical Alumni Day. Registration of more than 100 Alumni was completed by 8:45 A.M.

The following alumni registered for Alumni Day, 1964.

B. M. C. 1904  
Howard G. Stevens

Class of 1908  
Lester D. Norris

B. M. C. 1911  
William Triplett

P & S 1912  
Albert E. Goldstein

Class of 1913  
C. Reid Edwards

Class of 1914  
L. W. Blake Joseph Lipskey  
James C. Brogdem J. U. Roher  
J. J. Jenkins, Sr. I. G. Shirkey  
Augustus R. Laugier Byron W. Steele  
Nolan D. C. Lewis Austin H. Wood

Class of 1915  
Ernest G. Marr

Class of 1916  
Harry Goldmann

Class of 1917  
Louis A. M. Krause

Class of 1918  
John M. Nicklas

Class of 1919  
James Brown W. G. Geyer  
John A. Buchness M. LeRoy Lumpkin  
Eugene L. Flippin H. B. McElwain  
Wetherbee Fort C. Wilbur Stewart

		Class of 1920
Louis C. Dobihal	Z. Vance Hooper	F. A. Holden J. Morris Reese
Class of 1922		
George E. Shannon		
Class of 1924		
Clewell Howell	F. J. Theuerkauf, Sr.	James E. Peterman Alex A. Weinstock
Arnold L. Tabershaw	John Zaslow	
Class of 1925		
Joseph Nataro	Sam S. Glick	
Class of 1926		
Jacob Schmukler		
Class of 1927		
B. Lenson-Lambros	Bernard J. Cohen	Frank K. Morris A. H. Finkelstein
Class of 1929		
Joseph N. Corsello	William Yudkoff	
Class of 1930		
Archie R. Cohen		
Class of 1931		
Walter Kohn	Arthur G. Siwinski	
Class of 1932		
Harry C. Hull	Samuel E. Proctor	Arthur Karfgen John E. Savage
Louis F. Klimes		
Class of 1933		
Lauriston L. Keown	Ben Miller	
Class of 1934		
D. D. Caples	Edward S. Hoffman	Samuel Diener William H. Horan
George E. Dorman	Reuben Leass	Robert H. Dreher Helen I. Maginnis
John E. Echols	Hugh B. McNally	Robert W. Farr Milton S. Sacks
Leon H. Feldman	John N. Snyder	Sidney Gelman C. M. Stutzman
Herbert Goldstone	H. Lawrence Sutton	Charles L. Goodhand
Class of 1935		
E. I. Cornbrooks, Jr.	Howard B. Mays	Edward F. Cotter L. H. Mills
Joseph B. Gross	P. Polani	I. F. Hartman H. M. Robinson, Jr.
J. R. Heshinian		
Class of 1936		
Harry C. Bowie	Gibson J. Wells	Joseph R. Myerowitz
Class of 1937		
S. T. R. Revell, Jr.	C. Parke Scarborough	

# CAMERA VIEWS ALUMNI WEEK 1964



Dr. Nolan D. C. Lewis, '14, receives 50 year certificate from Dr. Wm. H. Triplett, executive secretary, Medical Alumni Association.



Dr. Gibson J. Wells,  
retiring President



Dr. J. Howard Franz, President  
Alumni Association 1964-65



Dr. M. A. Robbins, '44



Dr. C. Parke Scarborough.



Dr. Theodore E. and Celeste Woodward, Dr. Harry J. Robinson, Jr.



Drs. Robert W. Buxton, James C. Bragdon, '14, and Chas. Reid Edwards, '13, seen at reunion.



Dr. C. Wilbur Stewart.



Dr. T. Nelson Carey attended.



Dr. Isidore Tuerk, Commissioner of Mental Hygiene, State of Maryland, saw son graduate.



Dr. E. J. Guy, Class of 1944.



Dr. Howard B. McElvain



Drs. Helen I. Maginnis and Sylvio A. Alessi.



Dr. G. B. Grier, III.

BULLETIN OF THE SCHOOL OF MEDICINE, UNIVERSITY OF MARYLAND

Class of 1938

John A. Wagner	T. E. Woodward
Celeste Woodward	
Class of 1939	
Harry M. Beck	Wilbur C. Thomas
Henry A. Briele	John A. Moran
Richard M. Corbitt	Walter J. Pijanowski
George S. Grier, III	Ramsay B. Thomas
Leonard L. Heimhoff	John P. Urlock, Jr.
Benjamin Isaacs	F. B. Whitworth
Wm. H. Kammer, Jr.	Milton J. Wilder
I. L. Marks	Sol Wilner
D. L. Reimann	

Class of 1940

Lester H. Caplan	R. C. V. Robinson
Edward O. Dau	Samuel V. Tompakov
Ben H. Imloes	W. H. Townshend
James R. Karns	W. Earl Weeks
F. Ford Loker	R. T. Williams
Ross Z. Pierpont	

Class of 1941

Elizabeth B. Sherrill
-----------------------

Class of 1942

Karl A. Dillinger	Theodore Kardash
J. C. Furnari	William T. Raby

Class of 1943

Elizabeth Acton	John S. Haught
Harry Cohen	Hal Ingram
William R. Eaton	David R. Will

Class of 1944

Frank J. Brady	Ernest G. Guy
Rowell Cloninger	Donald W. Mintzer
R. Adams Cowley	Louis J. Pratt, Jr.
James A. Doukas	Morris A. Robbins
William Carl Ebeling	Charles E. Shaw
J. Carlton Godlove	

Class of 1945

John M. Dennis	Stanley R. Steinbach
J. B. Ganey	Yasushi Togo
J. R. McNimch	

Class of 1946

Joseph D'Antonio	Irl J. Wentz
James A. Sewell	Joseph B. Workman

Class of 1947

John F. Benson	Mary E. Matthews
Robert C. Duvall	Adalbert F. Schubart
A. R. Mansberger, Jr.	John P. White, 3rd

Class of 1948

B. Schwartz	F. J. Theverkauf, Jr.
Norman Tarr	William S. Womack

Class of 1949

Martin K. Gorten	Carolyn W. Watson
John F. Strahan	Frank Y. Watson
Gilbert L. Nicklas	Lillian K. Ziegler

Class of 1950

F. J. Borges	Wm. H. Yeager, Jr.
--------------	--------------------

Class of 1951

Robert K. Arthur, Jr.	F. S. Gardner, Jr.
Wm. H. Edwards, Jr.	H. Gray Reeves
James P. Gallaher	Eugene B. Rex

Class of 1952

B. A. Addison	Michael J. Foley
---------------	------------------

Class of 1953

Wyand F. Doerner, Jr.	Robert T. Singleton
Leonard H. Flax	Karl H. Weaver

Class of 1954

Robert B. Goldstein	Gerald Nangle
John F. Hartman	Riva Novey
Ben F. Knotts, Jr.	J. Walter Smyth
David A. Levy	H. R. Weiss
Beverly Nangle	Kenneth H. White

Class of 1955

Donald H. Dembo	Vincent S. Mikoloski
Marvin A. Goldliner	Leonard J. Morse
C. Ronald Koons	

Class of 1956

Daniel G. Anderson	K. M. Klatt
--------------------	-------------

Class of 1957

John T. Bulkeley	Chas. M. Henderson
------------------	--------------------

Class of 1959

A. C. Broccoli	Ramon Roig
Gilbert N. Feinberg	H. J. Rubenstein
Carlton S. Halle	Lee Russo
Robert S. Holt	C. E. Rybczynski
James P. Jarboe	Arthur A. Serpick
Jorge O. Just	

Class of 1961

Carl F. Berner	Gerald A. Hofkin
K. L. Cloninger	M. B. A. Oldstone
Leonard W. Glass	

Class of 1960

Jerome M. Read
----------------

Class of 1962

Kenneth William Tuttle
------------------------

Class of 1963

Hector L. Rodriguez
---------------------

The opening remarks were delivered by Dr. Gibson J. Wells, President of the Medical Alumni Association, and an additional welcome was given by Dr. William S. Stone, Dean. Dr. David L. Dingman, assistant resident in Surgery at University Hospital and a member of the National Geographic 1963 Mt. Everest Expedition, spoke on "A Personal Account of the Successful American Assault on Mt. Everest."



**Dr. Hugh R. Spencer receives Alumni Award and Gold Key from Dr. J. Gibson Wells, President of the Medical Alumni Association, as Dr. William S. Stone looks on.**

At 10:00 A.M., the scientific sessions of the Medical, Surgical, Obstetrical, and Pediatric Societies were held, followed by the annual Alumni business meeting in Chemical Hall. At this time the Alumni Honor Award and Gold Key was presented to Dr. Hugh R. Spencer, a member of the Class of 1910 and Emeritus Professor of Pathology in the School of Medicine.

In presenting Dr. Spencer for this award, Dr. Wells delivered the following citation which, in part, said: "Today we are bestowing the Medical Alumni Association Honor Award and Gold Key to a quiet, friendly, dignified gentleman, who will celebrate his 76th birthday on this Sunday, May 10. The life of this devoted and loyal alumnus has been covered in detail in a most excellent manner in several issues of the BULLETIN. . . .

"However, there are certain highlights I shall enumerate briefly. He was

born in Jarrettsville, Harford County, in Maryland.

"After his return, following the World War in 1918, to the School of Medicine, he was made Professor of Pathology and Head of the Department. We all know how he built up his department to an excellent degree of efficiency, and how he also helped raise the standards and reputation of the School by serving on the Admissions Committee, being a real friend and councillor to any seeking help. The door to his office was always open and he more than once poured oil on the troublesome and perplexing problems of students, faculty, and associates alike with his sage advice and dry humor. . . .

"In 1956 he retired and, on a day named in his honor, was paid high tribute by all his colleagues and former students from all over this vast planet. Since then he has enjoyed a well-deserved rest in company with his loving and devoted,

charming wife, a childhood sweetheart.  
...

"Therefore, today it is my good fortune to have the privilege of bestowing the Medical Alumni Association Honor Award and Gold Key to a former teacher and professor, a councillor and adviser, a scholar, and a gentleman of the old school, but above all, to a loyal alumnus who has given of himself so unselfishly

to advance the progress of our medical institution.

"I present to you a very close and dear friend for your recognition—Dr. Hugh R. Spencer."

Following the presentation by Drs. Wells and Stone, a rising ovation and applause was tendered Dr. Spencer.

Then followed a brief business meeting the minutes of which follow.

### TREASURER'S REPORT OF ALUMNI ASSOCIATION, 1963

The fiscal year ended April 30, 1963, with the Alumni Association in a sound financial position.

#### Opening Balance, May 1, 1962

Maryland National Bank (Checking Account) .....	\$ 4,356.10
Eutaw Savings Bank (Savings Account) .....	6,249.01
Balto. Fed. Sav. & Loan (Student Loan Fund) .....	1,023.49
	<hr/>
	\$11,628.60

Receipts, May 1, 1962—April 30, 1963 .....

\$23,485.34

Disbursements, May 1, 1962—April 30, 1963 .....

16,809.33

Balance .....

\$ 6,676.01

#### Closing Balance, April 30, 1963

Maryland National Bank (Checking Account) .....	\$ 540.47
Eutaw Savings Bank (Savings Account) .....	15,322.80
Balto. Fed. Sav. & Loan (Student Loan Fund) .....	1,441.26
	<hr/>

Total .....

\$17,304.53

Details of Receipts and Disbursements will appear separately in the BULLETIN following the auditors' report for 1963.

Closing balances for the past three years:

1961 .....	\$ 4,064.22
1962 .....	11,628.60
1963 .....	17,304.53

This represents a real endeavor to secure for the Association a more favorable financial position following a long period of a policy of financial insecurity.

The important reasons for stability are obvious if the organization is to become more progressively effective.

This year a curriculum vitae file of graduates was begun with the 1963 graduating class. This is to be a continuing endeavor anticipating an extension to cover all graduates of the Medical School. The value of this program to the Association and the Medical School is obvious and the expenditure will be a worthy one. The plan as presently conceived will, in addition to current photographs of all graduates and a basic file of information, encourage accumulation of significant information. We anticipate soliciting units possibly on a five to fifty year basis relating to graduation anniversaries. Thus your record will be periodically updated.

Tentative plans for a combined alumni center for the Baltimore Campus are

under discussion. Our sound financial status will place us in a very favorable financing position for this endeavor as it develops.

A substantial increase of the student loan fund is anticipated. At present this fund—administered by the student loan fund committee of the Alumni Association—is a modest one and your contributions to this very worthy activity of the Association are earnestly solicited.

Paid Membership for 1963 is 1,476—this is a sizable representation but should be much larger. A growing membership, continued sound fiscal policy and your support of the Medical Alumni Association will insure a greatly increased scope of effectiveness.

I am pleased to have had the privilege of presenting this increasingly favorable report for 1963.

Respectfully submitted,

HOWARD B. MAYS, M.D.  
*Treasurer*

**Minutes of the Annual Meeting of  
the Medical Alumni Association,  
University of Maryland**

(Held in conjunction with the First  
Maryland Medical Reunion)

May 8, 1964

The annual business meeting of the Medical Alumni Association was called to order by the Alumni President, Gibson J. Wells, M.D.

Dr. Howard B. Mays, Treasurer, reported:

Checking Account, Maryland National Bank . . . . .	\$6,047.32
Savings Account, Maryland National Bank . . . . .	5,000.00
Funded Reserve, Eutaw Savings Bank . . . . .	15,902.75
Student Loan Fund, Balto. Fed. Sav. & Loan . . . . .	1,007.51
<hr/>	
	\$27,957.58

He announced that Dr. George H. Yeager heads a subcommittee to assist in the planning of a joint Faculty-Alumni Facility.

Dr. Wells called our attention to the posted Necrology Report, following which a moment of silence was observed for our departed colleagues.

Dr. Hugh R. Spencer of the B.M.C. Class of 1910 was recipient of the Honor Award and Gold Key presented by Dr.

Wells and Dean Stone. Dr. Wells introduced Dr. Spencer recalling his 37 years as Professor of Pathology at the School of Medicine where he had won the admiration and friendship of the faculty and students. Dr. Spencer was remembered for his outstanding efforts in advancing the standards and reputation of our School and is considered one of our most loyal Alumni.

Dr. Spencer's remarks upon this occasion were very warm and expressive. He recalled the earlier days of struggle and organization of the Department of Pathology. Dr. Spencer was most appreciative to his colleagues for their advice and firm friendship throughout his years as Professor of Pathology. For him this award was, "The greatest honor and highest point of my life."

Dr. Wells reported that to date the student loan fund had received \$5,907.81 in subscriptions and made 14 loans totaling \$4,900.30, leaving a balance of \$1,007.51.

The report of the Nominating Committee was rendered by Dr. Frank K. Morris, Chairman of the Nominating Committee. The following officers were nominated for the year 1964-65:

President-elect—

Dr. C. Parke Scarborough

BULLETIN OF THE SCHOOL OF MEDICINE, UNIVERSITY OF MARYLAND

Secretary—

Dr. Thomas B. Connor

Treasurer—

Dr. Walter E. Karfgin

Vice-Presidents—

Dr. F. A. Holden

Dr. Robert W. Farr

Dr. John E. Moran

Three new Members of the Board of

Directors:

Dr. William H. Kammer, Jr.

Dr. Robert Goldstein

Dr. John D. Young, Jr.

Signed,

Frank K. Morris, M.D., *Chairman*

George H. Yeager, M.D.

Harry Beck, M.D.

Louis C. Dobihal, M.D.

John F. Hogan, Jr., M.D.

Respectfully,

FRANCIS J. BORGES, M.D.

*Secretary*

Dr. William H. Triplett, Executive  
Secretary of the Medical Alumni Association, then presented the Necrology roster for 1963, which is as follows:

**NECROLOGY ROSTER, 1963-64**

KOONS, EARLE W.	1924	
ROTTENBERG, JOSEPH	1912	
SHERMAN, LOUIS F.	BMC 1893	
MILHOLLAND, ARTHUR V.	1938	
FENBY, JOHN S.	1914	
DON DIEGO, LEONARD V.	1940	
HOGG, GORY	P&S 1895	
BOOKER, ROBERT F.	1902	
FAVOUR, RICHMOND, JR.	1904	
COOPER, CHARLES F.	1897	
BUNN, JAMES H., JR.	1936	
BABCOCK, W. WAYNE	P&S 1893	
WHISNANT, ALBERT M.	P&S 1893	
FIDLER, ARDVERN K.	1927	
McGREGORE, WILLIAM P.	BMC 1903	
FUCHS, ABNER M.	1925	
BUBERT, HOWARD M.	1920	
KEPPEL, ADAM S.	1909	
WELFELD, ALVAN A.	1938	
MITCHELL, GEORGE W.	1896	
RABINOWITZ, JACOB H.	1934	
MOLOFSKY, LEONARD C.	1938	
MARTIN, WILLIAM F.	1920	
PRUITT, HARRISON A.	BMC 1910	
WRIGHT, J. LEROY	BMC 1908	
KING, VICTOR F.	1951	
INSLEY, J. KNOX, SR.	1908	
McMULLEN, JOHN	1895	
STONE, WILLIAM L.	BMC 1910	
WHIPPLE, ERNEST E.	P&S 1908	
RICHARDSON, CHARLES R.	1903	
PETERS, H. RAYMOND	1922	
BROWN, JOSEPH L.	1918	
PERRAS, LOUIS A.	BMC 1911	
DAILEY, WILLIAM PAUL	1929	
FLACHS, ADOLPH	BMC 1907	
FORBES, SHERMAN B.	1918	
REHMAYER, W. O.	1931	
MEYER, ALVIN	1939	
FRANKLIN, PHILIP L.	1936	
DALTON, WILLIAM B.	1918	
GUTMAN, ISAAC	1934	
MORRILL, DAVID S.	BMC 1897	
LANE, EDGAR W.	1915	
FINKELSTONE, BENJAMIN B.	P&S 1910	
MACDOUGAL, WILBUR E.	P&S 1904	
NAUMANN, ALBERT A.	1915	
BERRY, ERWIN P.	1930	
GROUND, WILBERT LEE	P&S 1910	
HARMAN, HOWARD E.	P&S 1911	
AGNEW, JOHN R.	1914	
WEINSTEIN, JACK	1930	
TROXLER, RAYMOND M.	1914	
SHOCHAT, ALBERT J.	1931	
SCHAPIRO, ABRAHAM	1914	
ROSENBERG, HERBERT J.	1908	
WALLER, W. KENNEDY	1936	
DEES, DANIEL ALFONSO	BMC 1903	
DAVES, JOHN THOMAS	1917	
HOSMER, MERRILL F.	P&S 1914	
BISHON, EVERETT L.	1916	
ROLENSON, JULIO R.	1916	
HUGG, JOHN HENRY	1935	
AHROON, CARL R.	1901	
VILELLA, FELIX M.	P&S 1909	
HENDERSON, CLAIR C.	1914	
WANNER, JESSE R., JR.	1939	
MITCHELL, WILLIAM M.	1905	
BRILLHART, HARRY L.	P&S 1912	
DRIES, CHARLES L.	1911	
CLARK, SYDENHAM R.	1905	
HORINE, CYRUS F.	1919	
LOVILL, ROBERT J.	1910	
JONES, EZRA A.	BMC 1907	
POWELL, JESSE A.	P&S 1907	
FESSLER, WILLIAM	BMC 1907	
LAROQUE, HERBERT	BMC 1903	

Continued p. xxxiv

## Class of 1914

CHARLES W. ARMSTRONG, M.D.  
1216 W. Innes St., Salisbury, N. C. 28144

YATES M. BARBER, M.D.  
Tidewater, Va. 22566

GEO. WM. BISHOP, M.D.  
Pasadena, Md. 21122

WM. P. BLACK, M.D.  
111 Capitol St., Charleston, W. Va. 25301

LOWRIE W. BLAKE, M.D.  
5609 7th Ave. Dr. West, Bradenton, Fla. 33505

O. H. BOBITT, M.D.  
863 24th Ave. N., St. Petersburg, Fla. 33713

A. D. BOGERT  
Address not listed in 1963 AMA Directory

JAMES C. BROGDEN, M.D.  
108 W. 6th St., Tulsa, Okla. 74103

MORTON M. BROTMAN, M.D.  
212 S. Orange Ave., Apt. 10, S. Orange, N. J. 07079

MANUEL G. CARRERA, M.D.  
101 N. Union St., Fajardo, P. R. 00648

ARTHUR CASILLI, M.D.  
618 Newark Ave., Elizabeth, N. J. 07203

EVERETT L. COOK, M.D.  
4125 Arkansas Ave. N.W., Washington, D. C. 20011

GILBERT L. A. DAILEY, M.D.  
618 N. 3rd St., Harrisburg, Pa. 17101

THEODORE McCANN DAVIS, M.D.  
108 Vannoy St., Greenville, S. C. 29601

WALTER LEE DENNY, M.D.  
3908 N. Charles St., Balto., Md. 21218

CHAUNCEY E. DOVELL, M.D.  
62 S. Boxwood St., Hampton, Va. 23369

ESCHEVERRIA Y MORA, JOSE RAMON, M.D.  
Castillo del Principe, Havana, Cuba\*

RICHARD I. ESSLINGER, M.D.  
3720 Glenmore Ave., Balto., Md. 21206

ATTIE THOMPSON GORDON, M.D.  
Spencer, W. Va.

GEO. GARLAND GRAZIER, M.D.  
102 River St., Hollsopple, Pa. 15935

CECIL STARKE HASSELL, M.D.  
411 S.W. 29th Ct., Miami, Fla. 33135

HOWARD CARRINGTON HEILMAN, M.D.  
Elderton, Pa.

AARON L. HOLSTEIN, M.D.  
174 Undercliff Ave., Bronx 53, N. Y.\*

JESSE J. JENKINS, M.D.  
Farmington, W. Va. 26571

JAMES W. KATZENBERGER  
44 Cedar Rd., Severna Park, Md. 21146

HARRY STANLEY KUHLMAN, M.D.  
Sharptown, Md.

HERBERT LEONARD LANGER, M.D.  
212 Beach 69th St., Far Rockaway, N. Y. 11692

AUGUSTIN R. LAUGIER, M.D.  
Box 298, San Juan, P. R. 00902

MORRIS B. LEVIN, M.D.  
218 E. Univ. Pkwy., Balto., Md. 21218

NOLAN D. C. LEWIS, M.D.  
Rt. #5, Frederick, Md. 21701

JOSEPH LIPSKEY, M.D.  
Odenton, Md.

JOHN F. LUTZ, M.D.  
72 Southgate Ave., Annapolis, Md. 21401

CHARLES L. MAGRUDER, M.D.  
1010 N. Bundy Dr., Los Angeles, Calif. 90049

JOHN E. MAHER, M.D.  
96 Third Ave., Long Branch, N. J. 07740

ERWIN MAYER, M.D.  
The Esplanade Apts., Baltimore, Md. 21217

JOHN VINCENT MCANINCH, M.D.  
308 W. Lincoln Ave., McDonald, Pa. 15057

ALBERT D. McFADDEN, M.D.  
4313 Marble Hall Rd., Balto., Md. 21218

CHALLICE HAYDON METCALFE, M.D.  
Sudlersville, Md. 21668

MAJ. ALFRED MORDECAI, M.D.  
806 S. Hawthorne Rd., Winston-Salem, N. C. 28403

LT. COL. FRANK M. MOOSE, M.C., USA  
4501 Dalton Rd., Chevy Chase, Md. 20015

JOHN CHARLES O'NEIL, M.D.  
P. O. Box 158, Savannah, Ga. 31402

\* Last known address.

\* Last known address.

Class of 1934—University of Maryland  
Celebrates at Reunion



Class of 1934 (left to right): J. N. Corsello, E. Levi, W. Sullivan, J. Conn, G. Yeager, Mabel Silver, S. Brauer, L. S. Heck, S. Alessi, H. Cohen, and J. Haney.

MANUEL E. PUJADAZ-DIAS, M.D.  
1611 Colon Ave., Santurce, P. R. 00911

WILLIAM F. RICE, M.D.  
1965 5th Ave., San Rafael, Calif.\*

WALTER L. RICHARDS, M.D.  
Box 11, Rt. 4, Charlottesville, Va. 22901

JOSEPH U. ROHR  
Roanoke, Va.

RICHARD O. SHEA, M.D.  
25 Sanford P., Bridgeport, Conn. 06604

IVY G. SHIRKEY, M.D.  
Albemarle Apts., 1830 17th St., N.W.,  
Washington, D. C. 20009

BYRON WM. STEELE, M.D.  
Box 248, Mullens, W. Va. 24863

FRANK GREGORY STRAHAN, M.D.  
Red Gate Farm, Williamsville, Vt. 05353

GEO. LOUTRELL TIMANUS, M.D.  
1307 Maryland Ave., Baltimore, Md. 21201\*

THURMAN ELROY VASS, M.D.  
Box 167, Bluefield, W. Va. 24701

WM. SEBASTIAN WALSH, M.D.  
24 Greaton Dr., Providence, R. I. 02906

H. H. WARNER, M.D.  
2604 Garrison Blvd., Balto., Md. 21216

DAVID TRESSLER WILLIAMS, M.D.  
21 Hall Ave., Newark, Ohio 43056

AUSTIN H. WOOD, M.D.  
Med. Arts Bldg., Baltimore, Md. 21201

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\* Last known address.

\* Last known address.

# Class NOTES

ELSEWHERE in this edition you will find a "tear out" page, for reporting Alumni News to the BULLETIN. This is not an idle gesture.

Your achievements, fellow alumnus, are of interest to your classmates. They constitute a reward to the faculty, are a challenge to the younger physicians, and are an item of prestige for the University. Please cooperate with us by forwarding news of yourself or any alumnus to the BULLETIN. Thank you.

## Class of 1929

**Jacob H. Conn** was the principal speaker at the scientific seminar and at the award banquet of the Michigan Society of Psychosomatic Dentistry and Medicine, held in Detroit during the month of April, 1964. Dr. Conn's topic was, "Psychiatric Principles in Patient Management."

## Class of 1934

**William B. Soltz** of 1749 Grand Concourse, New York 53, N. Y., has been elected to fellowship in the American College of Physicians. Dr. Soltz was inducted at the annual meeting of the College at Atlantic City in April, 1964. Dr. Soltz has completed and published several research studies on "The Biochemistry of Aging" in collaboration with Dr. Bacon F. Chow of the Johns Hopkins School of Hygiene and Public Health.

## Class of 1937

**Joseph A. Muse, Jr.**, now serves as chief of Medicine at the Bon Secours Hospital in Baltimore.

## Class of 1943

**Myron J. Myers** has announced the removal of his office to 4419 Falls Rd. (at Cold Spring Lane) in Baltimore.

## Class of 1944

**Champe Clark Poole** of 2800 Green St., Harrisburg, Pa., has been named President of the Dauphin County Medical Society for 1964. Dr. Poole also serves as chief of Orthopedics at the Harrisburg Polyclinic Hospital, where he is also coordinator of the Department of Orthopedics and is acting chief of the Department of Rehabilitation. Dr. Poole has also served recently as President of the Orthopedic Section of the Pennsylvania Medical Society and is currently President-elect of the Harrisburg Academy of Medicine.

## Class of 1945

**Frank J. Ayd, Jr.**, received the honorary degree of Doctor of Laws from Xavier University, Cincinnati, Ohio, on June 3, 1964. Dr. Ayd also delivered the commencement address.

## Class of 1947

**Joseph W. Blevins**, who has served as medical director for the Instrument Department of the General Electric Co. in Lynn, Mass., has been appointed medical director for the Olin Aluminum Co., Hannibal, Ohio, where he assumed his new responsibilities on June 15, 1964.

Dr. Blevins will now be responsible for organizing a complete industrial medical service for a new aluminum rolling mill that has recently been built in Hannibal.

**L. J. Bunch**, formerly of Alamosa, Colo., has moved to South Fork, Colo.

**Gordon R. Forrer**, 20141 James Couzens Highway, Detroit, has published

a paper entitled "The Psychoanalytic Theory of Hallucination." This paper appeared in the journal, *Diseases of the Nervous System* (24:1, Dec., 1963).

### Class of 1955

**Paul C. Hudson**, former resident in neurosurgery at University Hospital and a practicing neurosurgeon in Baltimore, has joined the medical staff of the hospital ship S.S. Hope, in Guayaquil, Ecuador, where the ship has been stationed since December, 1963. Dr. Hudson will remain on duty with the ship through the early summer of 1964. He is a member of the fourth rotation team, each team spending about two months each on the ship to augment its regular staff of more than 80 physicians, nurses, and other medical personnel.

The S.S. Hope will remain in Guayaquil until September, 1964, when it will sail for Africa.

### Class of 1957

**Marvin S. Arons** of 107 Strand, Galveston, Texas, has been recently elected to the Society of Sigma Xi. Dr. Arons is also a member of the New York Academy of Sciences. He presented a paper at a recent meeting of the American Society of Maxillofacial Surgeons and at the Texas Society of Plastic Surgery. Dr. Arons has recently participated in the National Burn Seminar and has been active in the Association of Plastic Surgery Residents.

**Harvey R. Butt, Jr.**, of 710 Warren Drive, Annapolis, Md., has been certified by the American Board of Anesthesiology, the certificate being issued in April, 1964.

### Class of 1958

**Stuart H. Brager** has recently announced his association with Drs. Paul F. Guerin and Watson Kime as director of the Radioisotope Division of their Clinical Laboratory which is located at 1010 St. Paul St. in Baltimore.

**Richard J. Erickson** of 1209 Euclid Ave., Knoxville, Tenn., has recently returned from military duty in Germany and has resumed the private general practice of medicine. Dr. Erickson also serves as an instructor in the Department of General Practice at the University of Tennessee Research Center and Hospital and in the National Institutes of Mental Health postgraduate psychiatric program at the University of Tennessee.

### Class of 1960

**Jerrod Norman Lee** is engaged in the practice of pediatric neurology at the University of Oklahoma in Oklahoma City.

### Class of 1961

**Roger Lee Mehl**, surgical resident at the Presbyterian-St. Luke's Hospital in Chicago, was the recipient of an award-winning essay and annual prize for surgical research from the Chicago Surgical Society.

Dr. Mehl's work concerned "The Successful Treatment of Acidosis and Toxemia Following Replantation of an Extremity Severed for Prolonged Periods." Dr. Mehl also presented a paper of a similar title at the meeting of the North American Chapter of International Cardiovascular Society in San Francisco in June, 1964.

# Deaths

## P & S 1908

**Horace Allen Whisler** of 116 Grove Ave., Clarksburg, W. Va., died on February 17, 1964. Dr. Whisler was 79.

### B. M. C. 1897

**William Edward Hamlin** of Waltham, Mass., died on December 15, 1963. Dr. Hamlin was 88.

### B. M. C. 1901

**Ralph Gibson Perry, Sr.**, of 68 Main St., Wells River, Vt., died February 12, 1964, at the age of 87.

### B. M. C. 1903

**Herbert Larogue** of 10 Cherry Hill Rd., Reisterstown, Md., died recently.

### Class of 1906

**William Dick Campbell** of 145 W. Washington St., Hagerstown, Md., died on December 18, 1963. Dr. Campbell was 89.

### B. M. C. 1907

**William Fessler** of Grantwood, N.J., died recently.

**Ezra Albert Jones** of 2263 Elm St., Manchester, N. H., died recently.

### P & S 1907

**Jesse Avinette Powell**, Edenton, N. C., died recently.

**T. Frederick Leitz**, gastroenterologist and former chief of that department at Mercy Hospital, died on January 12, 1964. Dr. Leitz was 81.

### B. M. C. 1908

**Harry C. Podall**, 15 E. Jacoby St., Norristown, Pa., died on February 17, 1964. Dr. Podall was 81.

## B. M. C. 1909

**Juan S. Morales** of 14 Santa Cruz St., Bayamon, Puerto Rico, died recently.

### Class of 1910

**Robert Jones Lovill** of 125 Rockford St., Mt. Airy, N. C., died recently.

### B. M. C. 1910

**John Henry Messler** of Union Bridge, Md., died on December 3, 1963. Dr. Messler was 77.

### P & S 1910

**Lt. Col. W. Boyd Hunter** of Coral Gables, Fla., died on May 13, 1964.

### Class of 1911

**Charles Leibold Dries** of Barto, Pa., died September 5, 1963. Dr. Dries was 82.

### P & S 1911

**Joseph Birney Kilbourn** of Hawkhurst Farms died on May 10, 1964, at the Hartford (Conn.) Hospital.

The son of a member of the P & S Class 1897, Dr. Joseph Austin Kilbourn, he completed his surgical internship at St. Vincent's Hospital in New York City.

While attending a World Surgical Congress in London in August, 1914, during the time he was studying advanced surgery at the University of Vienna, England declared war on Germany. He returned to offer his services to the Austrian monarchy. Dr. Kilbourn was appointed chief surgeon of the Im-

perial Royal Austrian Ambulance Train and was one of the first to perform modern surgery on the battlefields of World War I. At that time he received an Imperial appointment to organize and staff the ambulance train, financed by the Austrian government, the International Red Cross, and private subscriptions.

For his performance of surgery on the battlefields of the Russian, Italian, Bulgarian, and Carpathian fronts, he was decorated by the Austrian emperor and by the Prussian government.

After returning from the war, he opened an office on Madison Ave., New York City, and was assistant visiting surgeon at Bellevue and German Hospitals and at the Lenox Hill Dispensary. He returned once again to Austria for training in Ophthalmology and then returned to the United States, serving on the staffs of Hartford and McCook Memorial Hospitals in Connecticut and at the Hartford Dispensary. For several years he contributed his services to the Glaucoma Clinic of the Hartford Lion's Club.

During World War II he was a member of the National Draft Board and President of the Friends of Austria, Inc., an organization devoted to helping refugees and for the restoration of freedom in, and the throne of, Austria.

For his refugee work, he was personally cited by Pope Pius XII in 1948.

Dr. Kilbourn was a member of the American Medical Association, the state, county, and Hartford Medical Societies, and the Hartford Eye, Ear, and Throat Society of which he was a past president.

He was a founder of the Eye Clinic at the Hartford Dispensary, a member of the Connecticut Historical Society, the Antiquarian and Landmarks Society, Sons of the American Revolution, and the Kilbourn Family Association.

He is survived by his wife, the former Baroness von Gussich, and two sons.

## P & S 1912

**Harry L. Brillhart** of 1036 Talbot Ave., Jacksonville, Fla., died December 14, 1963.

**Harry Wynn Vinicombe** of 1336 Troy Ave., Brooklyn, N. Y., died recently.

## P & S 1914

**Frank J. Ayd, Sr.**, East Baltimore general practitioner for more than 50 years, died at St. Joseph's Hospital on March 6, 1964. Dr. Ayd was 77.

A native of Baltimore, he began the practice of general medicine immediately after graduation and continued in this field until 1939, when he limited his practice to Pediatrics. He was active on the staffs of the St. Joseph's and Mercy Hospitals. During World War II he served as Assistant to the Director of the Pediatrics Clinic at University Hospital. For many years he had been active as a volunteer in youth groups. He served as attending physician to the old St. Elizabeth's Home and for many years was associated with St. Mary's Industrial School. During this period he donated over 1,000 volumes of general type literature to the institution.

**Merrill F. Hosmer** of 1282 Snell Isle Blvd., St. Petersburg, Fla., died of leukemia in November, 1963.

## Class of 1914

**James W. Katzenberger**, a general practitioner in the West Baltimore area for nearly a half-century, died on March 5, 1964.

A native of Oregon, Ill., Dr. Katzenberger moved to Baltimore in 1900. He was active on the staffs of the Bon Secours and St. Agnes Hospitals.

**Howard H. Warner**, a physician in Baltimore for more than 40 years, died June 5, 1964, following a lengthy illness. Dr. Warner was 74.

A native of Lincoln, Va., he moved to Baltimore at the age of 12 and was graduated from the Friends School and later from the University of Maryland. After receiving his medical degree, he joined the 29th Division where he was commissioned as a First Lieutenant. He served in World War I. Following the war, he resumed practice and for a while was associated with the late Dr. John Kurah, well-known pediatrician. At that time he served at the University Hospital in the Department of Pediatrics and was also active in the Department of Pediatrics at Union Memorial and the Women's Hospital of Maryland. For a time he served as a public health officer for the City of Baltimore.

### Class of 1915

**Patrick Aloysius Durkin** of 73 Maynard St., Pawtucket, R. I., died on November 27, 1963. Dr. Durkin was 73.

### Class of 1917

**John Thomas Daves** of St. Simons Island, Ga., died on September 17, 1963. Dr. Daves was 70.

### Class of 1921

**E. Martinez-Rivera**, Apartado 1233, Hato Rey, Puerto Rico, died on March 15, 1964.

### Class of 1924

**Samuel Marton** of 333 West End Ave., New York City, died August 16, 1961.

**W. H. Morrison** of 9625 Frankford

Ave., Philadelphia, Pa., died on February 6, 1964. Dr. Morrison was 67.

### Class of 1927

**Hiram Eugene Upton** of 144 S. Willard St., Burlington, Vt., died January 18, 1964. Dr. Upton was 61.

### Class of 1930

**Erwin P. Berry** of Baltimore, Md., died on August 3, 1963. Dr. Berry was 59.

**Rollin C. Hudson** died on May 29, 1964, after a lengthy illness. Dr. Hudson was 60.

For many years Dr. Hudson had been active in medical practice at Towson, where he had an office at 606 Baltimore Ave. He also served as a member of the Board of Managers of the Children's Aid Society of Baltimore County and had been active on the staff of the Baltimore County Health Department, serving as a specialist in Dermatology.

An avid hobbyist for many years, Dr. Hudson had collected semi-precious stones and fossil-marked rocks, acquiring an extensive collection. From some of these semi-precious stones he frequently contrived pieces of jewelry which he presented to friends as gifts. He was also a collector of oriental rugs and for many years raised prize orchids.

**Jack Weinstein** of 118-02 107th Ave., Richmond Hill, N. Y., died recently.

### Class of 1931

**Albert J. Shochat** of Baltimore, Md., died on August 3, 1963. Dr. Shochat was 57.

### Class of 1934

**Harry Warshawsky** of 523 W. High St., Lima, Ohio, died February 22, 1964.

## Class of 1935

**Robert Lionel DuBois** of Waterbury, Conn., died on January 1, 1964. Dr. DuBois was 54.

**John Henry Hugg** of Jeannette, Pa., died of injuries received in a fall on October 16, 1963. Dr. Hugg was 56.

## Class of 1938

**Robert C. Sheppard**, surgeon, member of the staff of University Hospital and chief surgeon at Spring Grove State Hospital, died suddenly at his home on April 26, 1964. Death was due to a massive cerebral hemorrhage.

Dr. Sheppard, who had also been a member of the medical department of the Western Electric Co., was a member of the Bon Secours and St. Agnes Hospitals staffs.

After serving a two-year internship at the St. Agnes Hospital, Dr. Sheppard took a three-year residency in surgery at the University Hospital, serving as its chief resident in his final year. During World War II he served in Army field hospitals in the European theater, returning in 1946 to private practice of surgery. He was a fellow in the American College of Surgeons, a member of the Medical and Chirurgical Faculty of

Maryland, the American Medical Association, and the American Board of Surgery.

Bob was a quiet, sincere, and attentive practitioner; a competent surgeon, friend, and adviser. His death at the age of 49, though premature, was but an untimely conclusion of a career rich in service and devotion to the highest ideals of medicine and the practice of surgery.

He is survived by his wife, the former Nancy Craven, an alumna of the School of Nursing, University of Maryland; one daughter, Miss Margaret Sheppard, also survives.

## Class of 1939

**Robert T. Coffman** of 1 N. Davis St., Keyser, W. Va., died on April 24, 1964.

**Jesse R. Wanner, Jr.**, of 228 N. Division St., Salisbury, Md., died October 12, 1963. Dr. Wanner was 49.

## Class of 1942

**Prevost Hubbard, Jr.**, of 37 Ridge-way, White Plains, N. Y., died on December 9, 1963, at the age of 49.

## Class of 1944

**Jose Garcia y Garcia** of 1803 Ponce de Leon Ave., Santurce, Puerto Rico, died recently.

and was followed by a luncheon in John Eager Howard Hall.

Scientific sessions then continued from 2:00 to 4:00 P.M., followed by a cocktail party for 50-year graduates at the Lord Baltimore Hotel.

On the evening of May 8, honored guests included the members of the Class of 1914 (see list of registrants) who were presented with their 50-year diplomas and members of the graduating class of 1964. Speaker of the evening was Dr. Jack C. Norris, Assistant Clinical Professor of Pathology, Emory University, Atlanta, Ga.

## Continued from p. xxvi

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AYD, JOHN F., SR.	P&S 1914
DURKIN, PATRICK A.	1915
MESSLER, JOHN H.	BMC 1910
CAMPBELL, WILLIAM DICK	1906
HAMLIN, WILLIAM EDWARD	BMC 1897
MORALES, JUAN S.	BMC 1909
WARSHAWSKY, HARRY	1934
HUBBARD, PREVOST, JR.	1942
VINICOMBE, HARRY W.	P&S 1912
KATZENBERGER, JAMES W.	1914
GARCIA Y GARCIA, JOSE A.	1944
MARTINEZ-RIVIERA, EZEQUIEL	1921
DUBOIS, ROBERT L.	1935
SHEPPARD, ROBERT C.	1938
COFFMAN, ROBERT T.	1939

The business meeting then concluded

## ALUMNI NEWS REPORT

## TO THE BULLETIN:

I would like to report the following:

## SUGGESTIONS FOR NEWS ITEMS

### American Board Certification

### Change of Address

### Change of Office

### Residency Appointment

### Research Completed

### News of Another Alumnus

#### Academic Appointment

## Interesting Historic Photographs

Name \_\_\_\_\_

### Address

### Class

Send to

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Baltimore 1, Md.



# BULLETIN *School of Medicine*

## *University of Maryland*

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OCTOBER, 1964

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# Reliability Engineering for Open Heart Surgery

WILLIAM G. ESMOND, M.D., R. ADAMS COWLEY, M.D., ALBERT LEWITINN, JOHN FRANZONE\*,  
THEODORE CARSKI\*\*, ROBERT KAESTNER†, EDWARD HURDLE†, BERNARD BAKER‡

## Introduction

OPEN HEART OPERATIONS for the repair of complicated congenital and acquired heart defects by trained teams of physicians have become numerous in many medical centers throughout the country. Entry into the heart for the direct suturing or for the placement of prosthetic materials requires the occlusion of inflow blood into the heart under conditions of moderate body hypothermia (28°C) for a brief period, or the complete support of the patient's gas exchange and circulation for a prolonged period with the aid of a heart lung machine. A number of efficient designs for heart lung machines are available and in clinical use at the present time. The function and use of all units is basically similar. However, the system developed at the University of Maryland School of Medicine offers significant advantages in increased reliability.

Briefly, extracorporeal circulation for open heart surgery is conducted as follows: After the chest has been opened by the surgical team and the patient's blood has been treated with heparin, blood is lead from the patient's great veins and is allowed to syphon into a device primed with heparinized blood designed to permit gas exchange to occur

to duplicate the function of the lungs. This device is called an oxygenator. Extracorporeal perfusion systems are basically of three types depending on the method used to oxygenate the blood. 1.) Bubble oxygenation systems function by injecting oxygen gas directly into a vertical column of blood. The large surface area produced by the bubbles permits the rapid entrance of oxygen into the blood and the escape of adequate quantities of carbon dioxide which leaves the device by means of a tube provided for this purpose. The resulting foam produced by the oxygenating column is rapidly broken down by means of silicon antifoam. 2.) Filming type oxygenation systems allow gas exchange to occur by filming large areas of blood on vertical screens or on rotating discs. 3.) Membrane oxygenation systems consist of layered envelopes of alternating blood and oxygen layers in which gas exchange occurs through permeable membranes of Teflon® or Silastic® rubber thus avoiding direct contact of blood and oxygen gas. A rotating disc oxygenation system<sup>1, 2</sup> is employed at the University of Maryland Hospital in Baltimore (Figure 1).

Following pressurization in a pump, warming (or cooling) in a heat exchanger, debubbling and filtering, the oxygenated blood is injected into the patient's femoral artery where it passes into the main arterial channel of the body, the aorta, where it flows to perfuse all tissues before returning through the capillaries to the great veins to complete the cycle

From the Division of Thoracic Surgery, Department of Surgery, University of Maryland School of Medicine, Baltimore 1, Maryland.

Supported by U. S. Public Health Grants H-2618 (C8) and H-5636 (C-3).

\* Fawn Plastics, Timonium, Md. Baltimore Biological Laboratories.

\*\* Baltimore Biological Laboratory.

† E. A. Kaestner Co., Baltimore, Maryland.

‡ Dept. of Mechanical Engineering, The Johns Hopkins University.

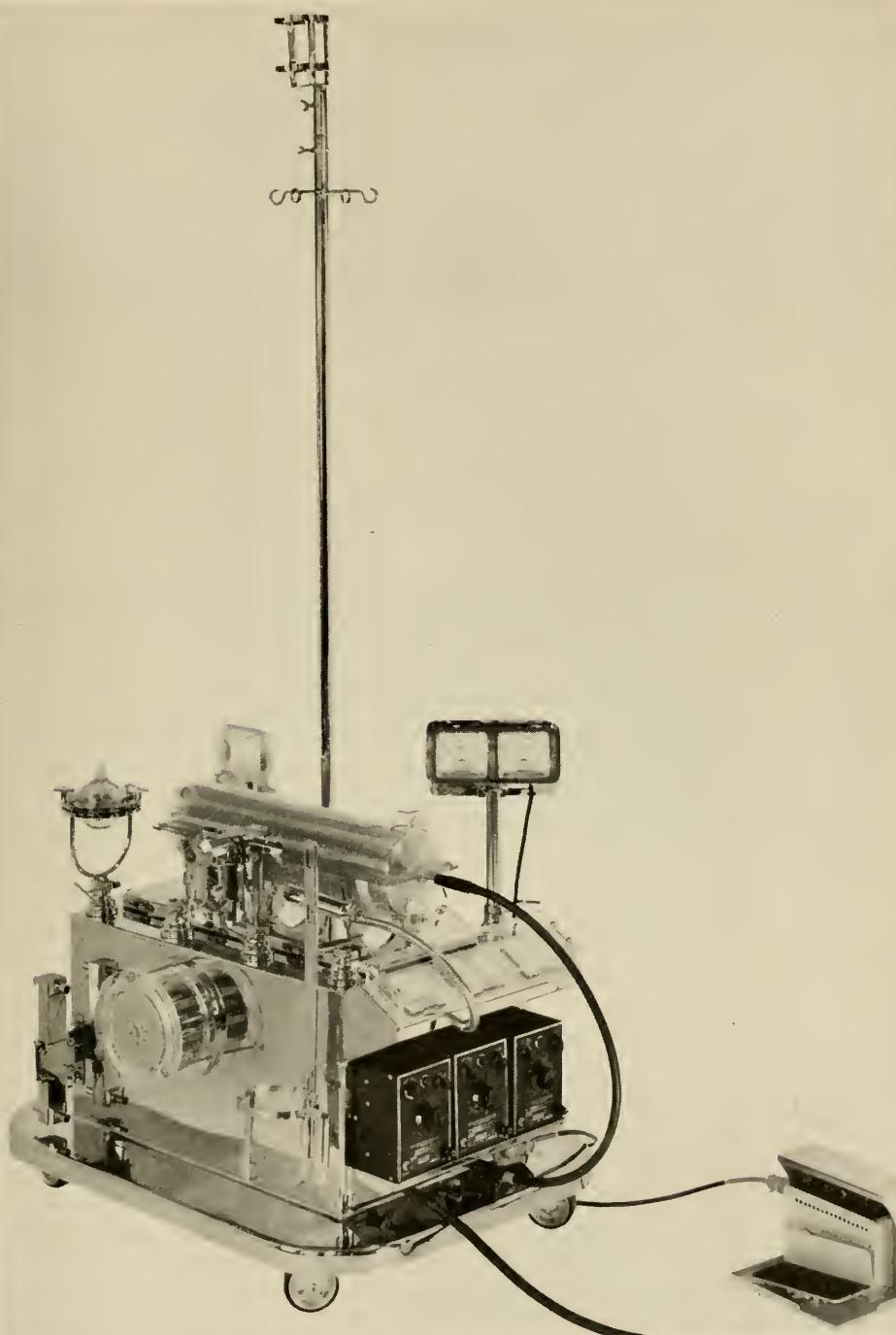


Fig. 1. Three pump, plastic convoluted disc, extracorporeal circulation system developed at the University of Maryland.

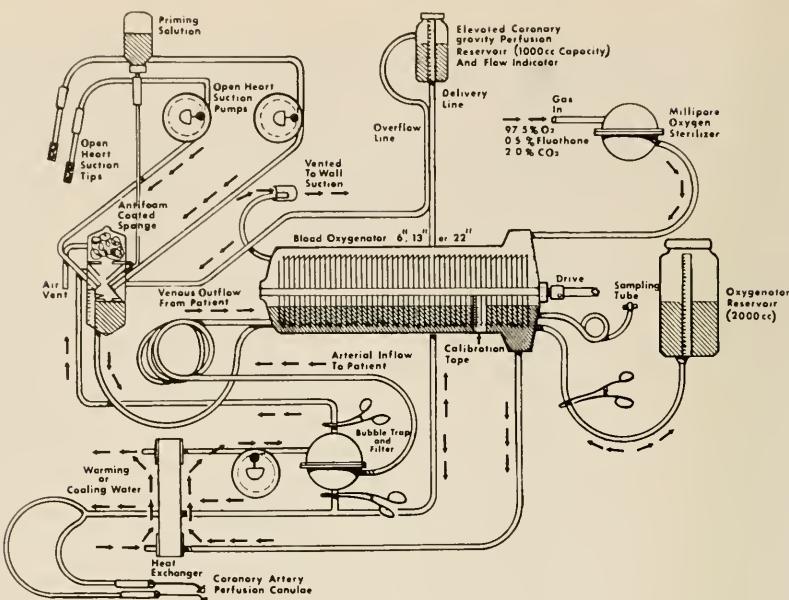


Fig. 2. Flow circuit diagram used in complete three pump system. Elevated gravity reservoir is used to separately perfuse the coronary arteries for aortic root surgery.

(Figure 2). Other circuits must be provided in the equipment for the gentle recovery of blood from the open heart during the repair and for perfusing the coronary vessels of the heart itself, if entry must be made into the aorta near the heart.

#### Design Criteria

A large number of design criteria must be satisfied for a satisfactory safe extracorporeal circulatory support system. The system employed for gas exchange must permit the discharge of adequate quantities of carbon dioxide from the venous blood while at the same time causing adequate quantities of oxygen to enter hemoglobin without introducing actual bubbles into the arterial blood stream. A means must be provided to mix an anesthetic gas such as  $\frac{1}{2}\%$  Halothane® with the 97.5%  $O_2$  — 2%  $CO_2$  gas at a flow rate of 5 to 10 liters/minute used to supply the oxygenator. Sterilization of this gas must be accom-

plished with a Millipore filter membrane (Figure 2) in order to exclude bacteria from the oxygenator. All materials used in the system must be nontoxic and nonhemolytic to blood. Plastic materials must be selected with care and, even though regarded as nontoxic, should not be employed unless proved nontoxic by imbedding in rabbit rectus muscle for a period of two weeks followed by histologic study. All surfaces must be smooth and be readily cleaned. In order to avoid propagating serum hepatitis virus, which is sometimes present in donor blood, materials must be selected with care so that they can withstand prolonged immersion in caustic soda solution which will also dissolve protein films and remove pyrogenic materials.

Oxygenators must reliably oxygenate large quantities of blood at high flow rates for even the largest adult patients without damaging blood, and without causing foaming or the introduction of

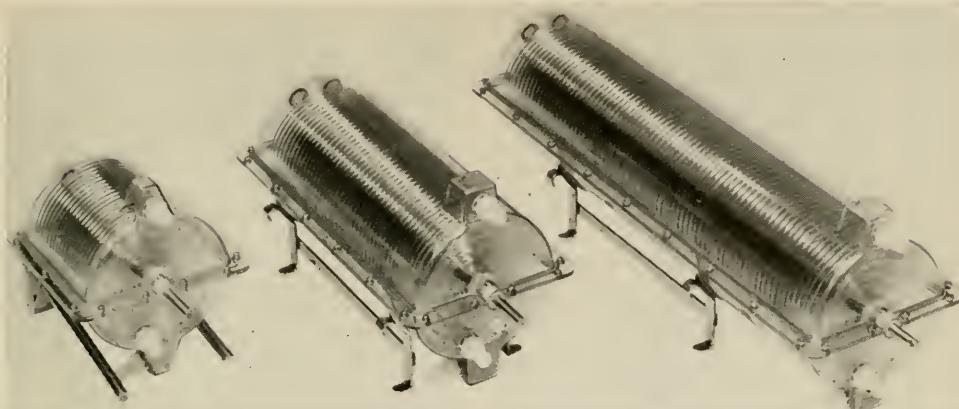


Fig. 3. Six inch, 13 inch, and 22 inch polycarbonate, autoclavable, reusable, convoluted disc blood oxygenators developed for use as the artificial lung for infants, children, and adults.

bubbles of gas into the arterial system of the patient. Previous experience (prior to 1958) with stainless steel and glass oxygenators indicated these units to be fragile and to sometimes crack during autoclaving. In addition, glass chips originating from the ends of the glass cylinders were sometimes found in assembled oxygenators. Since blood cannot be allowed to contact bare glass because of causing coagulation disturbances, glass cylinders had to be coated with a silicon material for each case. The removal and recoating of the cylinders proved to be a major problem and breakage during handling was frequently encountered.

It was decided, therefore, to completely redesign a disc oxygenator in high impact autoclavable plastic which would be chip-proof, steam autoclavable, relatively low in cost, and which would not require coating with silicon. The oxygenators designed are precision molded in transparent Lexan polycarbonate resin® (Figure 3) and can be autoclaved at 270° F, or sterilized with ethylene oxide gas. The units are low in cost and, therefore, can be stockpiled in a sterile condition ready for instant application

in the event an emergency perfusion is required. The high impact Lexan plastic has virtually eliminated problems of breakage experienced with previously used glass oxygenators. Injection molding into highly polished molds has resulted in a mirror smooth finish which has reduced blood trauma and has eliminated foaming in the oxygenator. The low thermal conductivity of the plastic has greatly reduced thermal flux in the equipment and the patient's temperature can be controlled to within 0.1° C if desired. The units are easily disassembled and cleaned. Precise injection-molded, replacement, and interchangeable parts are low in cost.

Bubble traps must be provided to efficiently defoam blood recovered from the open heart during prolonged procedures. As much as 50 to 100 liters of blood must be recycled through this debubbling system during the replacement of a prosthetic heart valve. This blood must be recovered efficiently and gently and adequately defoamed before returning to the oxygenator and then to the patient. Some defoaming systems used for the recovery of blood from the open heart by suction discharge the foam directly

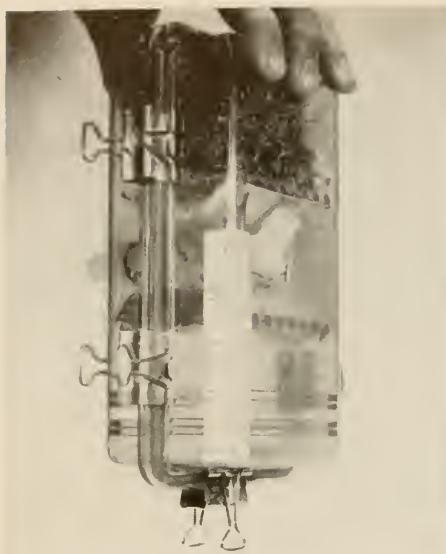


Fig. 4



Fig. 5

Fig. 4. Polycarbonate open heart suction defoaming reservoir. Fig. 5. Polycarbonate bubble trap-filter with 100 mesh electro polished stainless steel screen. Used in the arterial line to the patient as the final insurance of bubble free arterialized blood free of potential embolic particles.

over stainless steel sponges coated with Antifoam "A" (polymethylsiloxane) to break up the bubbles. Antifoam "A" is an oily material and can be swept into the arterial system of the patient to form embolic particles. We have avoided problems incident to defoaming by constructing a special reservoir (Figure 4) in which the open heart suction blood is injected into a three-chambered compartment where 95 percent or more of the foaming occurs passively. Excessive suction for a prolonged period of time has never involved more than the gentle contact of the bottom of the coated sponge with the foam. We consider this method is one explanation for the virtual absence of neurological problems incident to open heart surgery at this hospital. An efficient filter-bubble trap must also be placed in the arterial line returning to the patient (Figure 5). This unit must effectively trap small platelet clumps which may occur and is used to

completely debubble the system prior to the onset of bypass. A 100-mesh electro-polished stainless steel screen effectively removes potential embolic material and is also believed to be responsible for the virtual absence of neurologic problems in patients following even prolonged periods of extracorporeal circulation.

Blood pumps must be designed to handle blood gently with a minimum of turbulence so as to reduce hemolysis to a level as low as can be attained. The pump should have replaceable blood contacting components and be stable in operation for prolonged periods of time. Pump output should be predictable and controllable in all useful flow ranges. A single rigidly supported roller, 360° tubing loop pump, designed at the National Institutes of Health was completely redesigned by the author<sup>3</sup> to provide a spring-loaded roller floating in four Thompson linear motion ball bearings<sup>4, 5</sup> to compress the single 360° loop of tub-

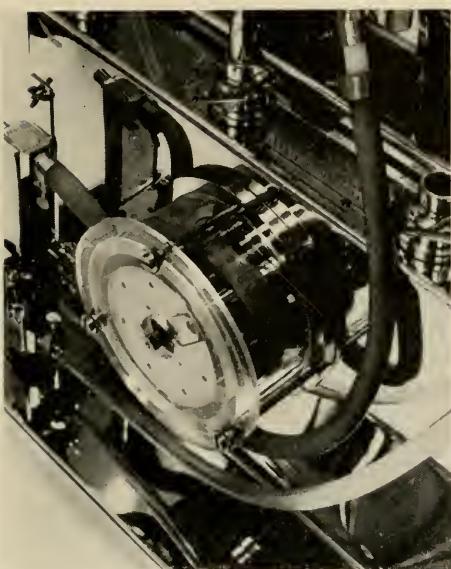


Fig. 6. Single spring loaded roller, 360° tubing loop blood developed to minimize hemolysis to the lowest possible level and to provide precise flow control as a flow meter. Ten inch disposable stainless steel heat exchanger is shown to the left of the pump.

ing held securely in a redesigned rigidly mounted cylindrical pump housing (Figure 6). Six idler ball bearing rollers were also included to insure the safety of the tubing loop. Test performance of this pump fulfilled all desired design criteria. Accurate flows of from 1 cc to 8,000 cc/minute can be obtained by varying tube size and rotation rates. Flows up to 32 liters a minute for prolonged periods of time have been accomplished with a special high speed drive (0-640 r.p.m.) without damaging the tubing. Flows of a fraction of a cubic centimeter per minute may also be accurately delivered with this pump. Blood hemolysis damage rates were found to be lower than reported for other blood pumps in use. Recently a new low hemolysis blood pump designed by the U. S. Army was evaluated at The Walter Reed Army Hospital with the University of Maryland 360° single roller spring loaded blood pump.

The Maryland 360° pump was found equal to the Army blood pump at a flow of 2 liters/min. The Maryland pump was found less hemolytic than the Army pump at 4 liters/min. blood flow rate. Clinical experience with the 360° single spring-loaded roller pump has shown very low hemolysis levels and complete safety in operation. Tubing cannot be cut or jammed in the pump.

The pump is furthermore unique in that it serves as a flow meter. The flow meters are calibrated in two ranges, from 0-4,000 cc/minute and 0 to 8,000 cc/minute. The advantage of being able to set the required blood flow for each patient without introducing complex electromagnetic flowmeters into the lines cannot be over-emphasized, and precise flow control is largely responsible for the freedom from metabolic acidosis following prolonged clinical perfusions, in otherwise uncomplicated cases. In addition, the Maryland 360° single spring-loaded roller pump flow is pulsatile and produces pulse waves in the patient of from 10 to 20 mm. of mercury. Pulsatile flow is desirable and is thought to aid in proportioning blood to tissues.

Heat exchange is accomplished in the system by a small 10-inch-long disposable stainless steel unit (Figure 6) having a priming volume of less than 100 cc.<sup>6</sup> Caloric exchange of as high as 64,000 gram calories a minute can be safely exchanged in the unit. A new unit is used for each case. The units have extremely low flow resistance, do not hemolize the blood and have been reliable in operation. Heat transfer is accomplished by circulating warm or cold water through the heat exchanger from a wall mounted Powers' regulator valve or from a supply of ice water circulated by centrifugal pumps. Immersion heaters are kept on hand to produce a supply of emergency warm water in the event that the hospital

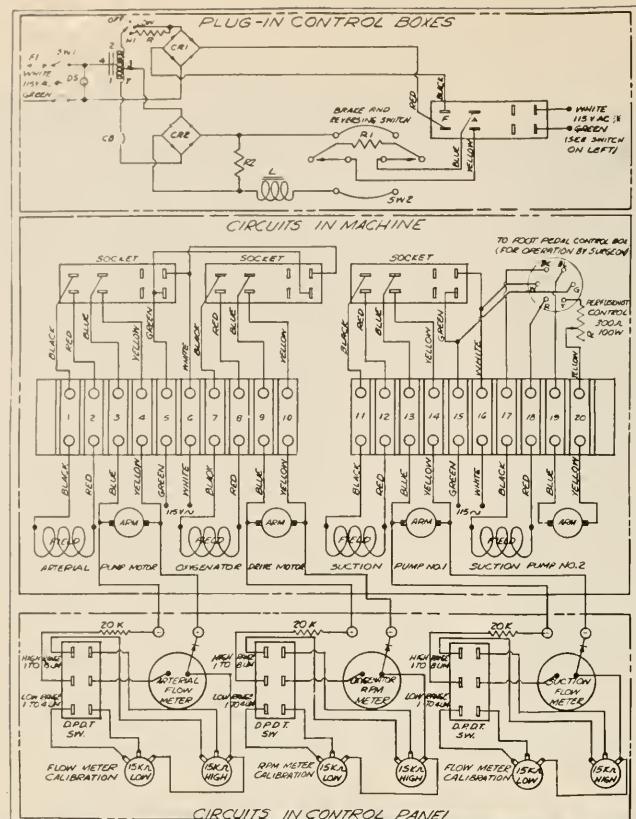


Fig. 7.

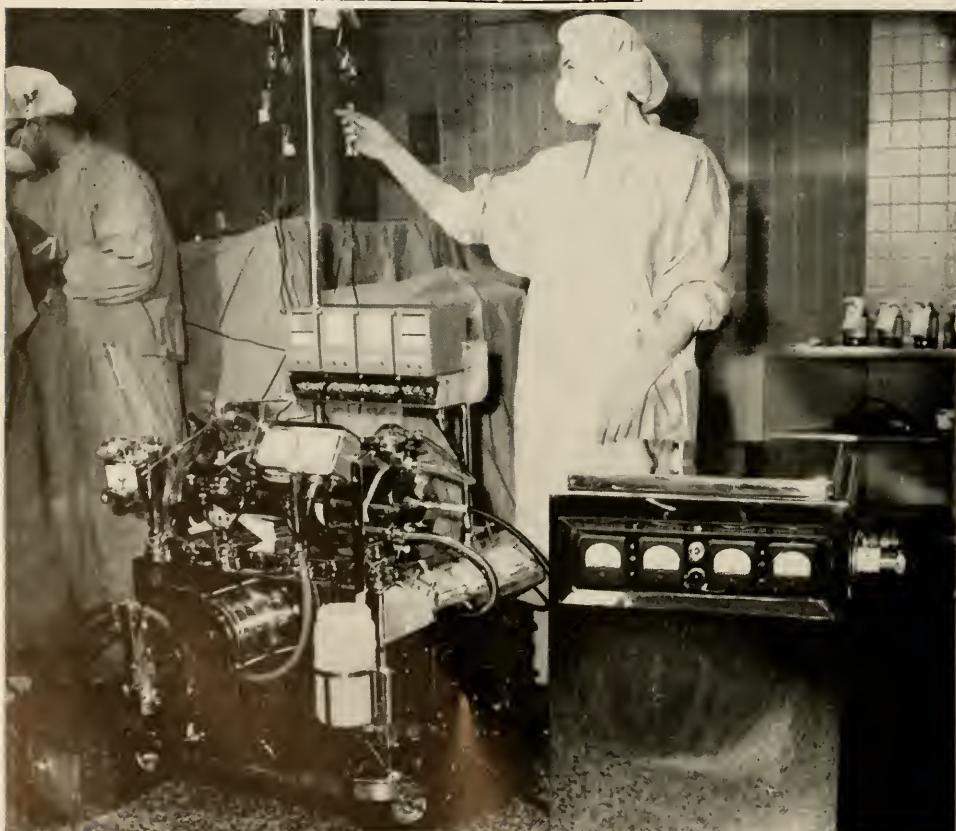


Fig. 8A. Two-hour emergency 110 volt A.C. nickle-cadmium battery power supply shown on the right connected to the complete perfusion system on the left.

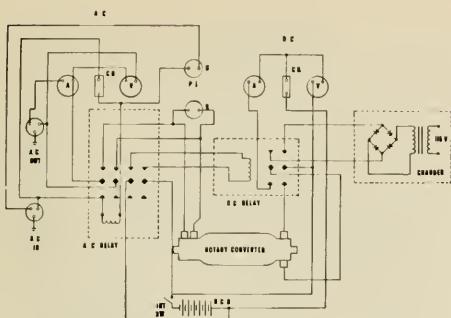


Fig. 8B. Wiring diagram used in emergency A.C. power generator.

supply of hot water fails as it did April 14, 1964, due to a short circuit in old wiring leading to a centrifugal elevated reservoir supply pump.

The stainless steel cabinets used are seamless heli-arc welded and highly polished. The absence of seams allows maximum sanitation to be maintained and heavy gauge construction assures decades of useful service.

All electrical components have been selected for maximum reliability and no failures have occurred in service. The wiring diagram is shown in Figure 7. Control boxes are plug-in type for rapid replacement if required. Three electrical line power failures occurred at the University hospital about five years ago and were successfully handled in all cases with difficulty by manual emergency cranking. In the fall of 1963 the design and fabrication of a dynamic 110-volt 2-hour emergency power supply operated by nickle-cadmium batteries (Figure 8) was completed. The sealed lifetime batteries are maintained fully charged at all times and the loss of normal line power causes the dynamotor to immediately switch on with a time delay to full power of less than one second. Power continues to flow to the heart lung machine for 2 hours, or until the resumption of normal line power, when relays immediately

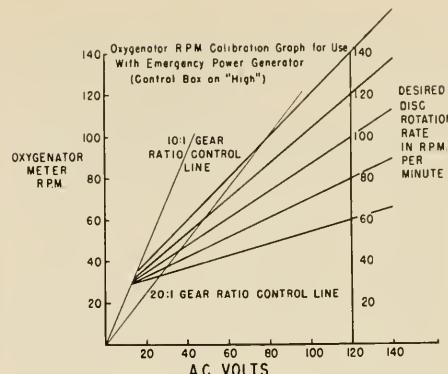


Fig. 9.

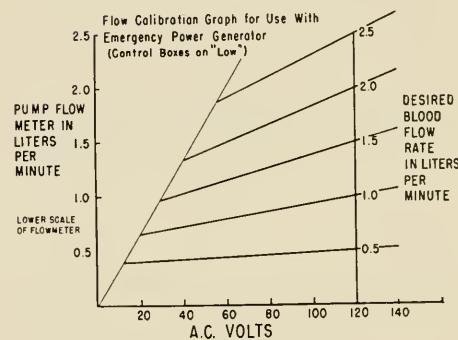


Fig. 10.

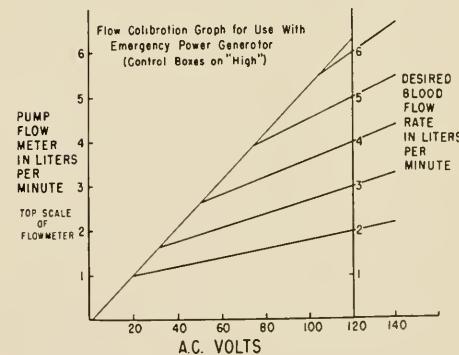


Fig. 11.

transfer connections to normal line power. Calibration curves have been carefully prepared (Figures 9, 10, 11) so that pump and oxygenator output can be maintained accurately during the emergency power period despite a slowly declining output voltage (Figure 12).

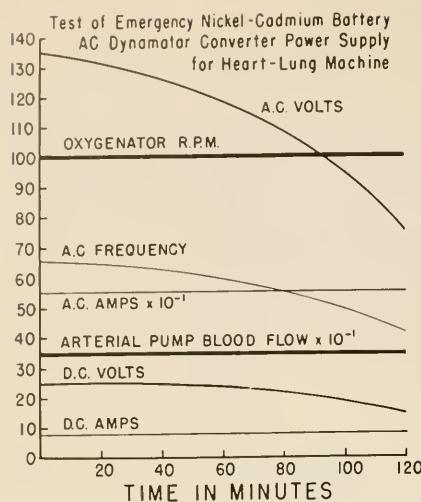


Fig. 12. Despite a declining A.C. output voltage and frequency, the output of the main arterial pump and oxygenator can be maintained constant by applying the previously prepared calibration curves.

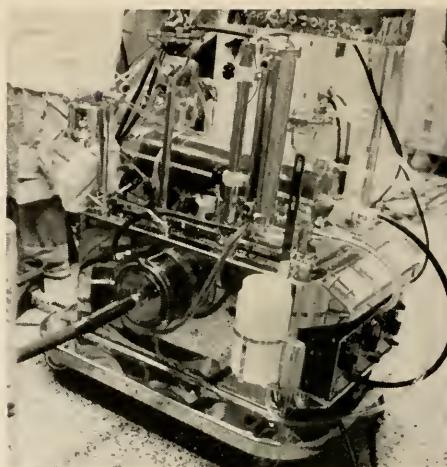


Fig. 13. Instead of an emergency crank, an emergency torque generator can now be applied to the main arterial blood pump and oxygenator to maintain a constant smooth output in an emergency. This unit obsoletes emergency cranks used in other systems.

Reserve torque in the equipment is high and sufficient torque remains in the arterial pump shaft and oxygenator shaft to maintain full output for the two-hour period. In addition, two motors and control boxes are provided in the equipment to serve in the unlikely event of a motor failure within the machine itself. In this rare event, the emergency torque generator can be quickly attached by means of flexible shafts to the main arterial blood pump (Figure 13) and to the oxygenator and the flexible shafts will drive these units indefinitely with a precision that could not be attained with manual emergency cranks previously used. We believe that this is the first unit of its kind in use for this application. A reader who read of the Cook County Hospital blackout for 7½ hours February 2, 1964, in which all power including their emergency generators was interrupted, will realize that the optimum placement of emergency power is at the exact site of required application. We

believe this unit significantly increases the security of patients undergoing open heart surgery with extracorporeal circulation and predict that many systems will be so equipped in the future.

Equipment is carefully checked and lubricated periodically. Complete reliability in hundreds of clinical perfusions has resulted from optimizing design parameters and from constant vigilance to insure that equipment is maintained in the highest state of readiness to serve the patient.

### Summary

Design features for a reliable, low hemolysis, clinical cardio-pulmonary bypass system developed at the University of Maryland have been presented. A standby emergency power and torque generator has been described which increases the security of patients undergoing open heart surgery with the aid of extracorporeal circulation.

### Acknowledgements

We wish to thank the following people for their valued contributions to this work:

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*Grinding Specialties Company, Baltimore, Maryland:* Mr. Harold Woodward.

*Johns Hopkins University, Baltimore, Maryland:* Dr. Ralph Witt.

*Washington Aluminum Company, Baltimore, Maryland:* Mr. Robert Sanford, Mr. William Campbell, Mr. Kenneth McCauley.

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# The Effects Of Radiation In Utero On The Human Fetal Brain\*†

## Report of a Case

MARVIN N. GOLDSTEIN, M.D.‡, J. A. WAGNER, M.D., and LESTER KIEFER, M.D.

ALTHOUGH NUMEROUS CASES of post-irradiation damage to the human central nervous system have been reported,<sup>8, 9</sup> we have been unable to find a report of the effects of irradiation on the central nervous system of a near-term, human fetus that lived for an appreciable period after birth. The following case report is, therefore, presented.

**Case Report:** A 1701 Gm. female newborn was admitted to the nursery of the University Hospital after birth by low line caesarean section. The child's mother, para 4-0-0-4 (STS negative), and 33 years old, had suffered a squamous cell carcinoma of the cervix (Stage I), diagnosed by smear, biopsy and conization. Exactly five months before the expected date of delivery, radiation therapy was begun. Two and one-half months before expected date of delivery the mother began labor and the child was delivered by caesarean section. During the intervening period the fetus received a calculated 3420-3620 rads of gamma radiation in fractional doses from  $\text{Co}^{60}$  and radium.

At birth, the infant breathed and cried spontaneously and was thought to be in fine condition, except for mild generalized cyanosis and tight shiny skin over her fingers. The circumference of the head was 45.5 cm.; chest circumference was 26 cm.; length was 45.5 cm. Fifteen minutes after birth, the child was noted to have cutaneous ecchymoses and petechiae, which could be precipitated by slight pressure to any point on the body. The umbilical cord hemoglobin was 12.2 Gm. The total blood bilirubin was 3.6 mg.% and the white blood count was 600.0 per cubic millimeter.

(66% neutrophils and 34% lymphocytes). Five hours after birth, edema of all extremities was noted. At 48 hours of age, the child's hemoglobin was 10.0 Gm./100 ml. There were 300 white blood cells per cubic millimeter, 80% of which were neutrophils with 16% lymphocytes, 7% eosinophils, and 7% basophils. There were 3000 platelets per cubic millimeter, with 8 nucleated red blood cells per 100 white blood cells, and a 1% reticulocyte count. At this time, total blood bilirubin was 22.5 mg. per 100 ml. By the seventh day of life there were 10 nucleated red blood cells per 100 red blood cells. Reticulocytes numbered 2.4%. The white blood count, hemoglobin and hematocrit had steadily dropped.

On the third day of life, epilation had begun and weakness became marked. Suck, rooting reflex and Moro reflexes remained active for 7 days. By the 12th day of life, there was no Moro; the child would not suck and she was completely bald. The patient deteriorated progressively, and expired on the 17th day of life.

### General Autopsy Findings

At autopsy, the infant weighed 1500 Gm. There were numerous petechiae and ecchymoses over the body and a decreased amount of hair on the scalp. Pertinent general autopsy findings were multiple subserosal hemorrhages over the stomach and intestines and subpleural hemorrhages over both lungs. Frothy fluid was easily expressed from the cut surface of all lobes of the lung.

Microscopic examination of the bone marrow revealed almost complete absence of hematopoietic elements. The spleen contained only scattered hematopoietic cells in the sinusoids, with complete absence of splenic follicles. There

\* From the Division of Neuropathology, University of Maryland School of Medicine.

† Aided by a Grant (5 T1 NB 5224-06) from the United States Public Health Service.

‡ Present address: University of Chicago Clinics, Chicago 37, Illinois.

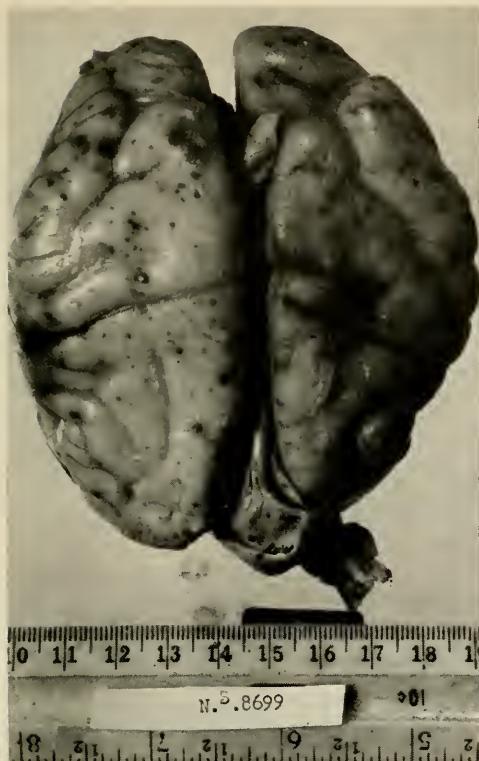


Fig. 1. Cerebral Convexity: The leptomeninges are cloudy. The gyri are flattened.

were numerous areas of hemorrhage in the thymus, and most of the cortex was seen to be made up of fibrous tissue with only scattered lymphocytic cells. The liver was remarkable only in that there was absence of the intramedullary hematopoiesis which is normally seen in the newborn premature infant. The pleura was thickened and the alveolar walls of the lungs were seen to be hypercellular. There were no other significant findings.

#### Nervous System Findings

Numerous discrete and confluent hemorrhages were seen under the galea aponeurotica. Widespread hemorrhagic foci were present within the epicranium and dura.

The brain weighed 320 Gm. The external development appeared normal. The

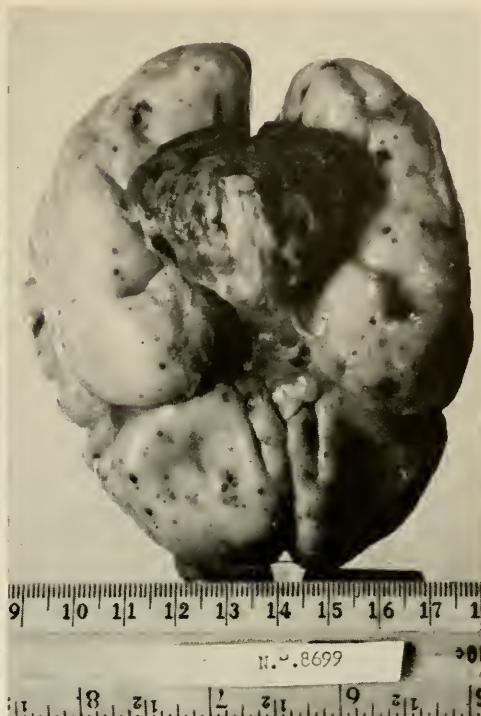


Fig. 2. Base of the Brain: Notice the confluent hemorrhages covering the cerebellum.

sulci were widened, and the gyri were flattened. The leptomeninges showed increased opacity (Fig. 1). The cerebellum was covered with a large number of confluent hemorrhages (Fig. 2). The cerebellar hemispheres also showed relatively decreased consistency. The pons and medulla were of normal appearance and consistency.

Sections through the cerebrum revealed poor differentiation between gray and white matter, considered normal for this patient's age. Numerous greenish petechial hemorrhages were found scattered through the gray matter (Figs. 3 & 4). The ventricles, hypothalamus and thalamus were normal. The choroid plexus of the third and lateral ventricles contained petechial hemorrhages. Hemorrhages were seen in the proximal medulla and pons. Upon sectioning the

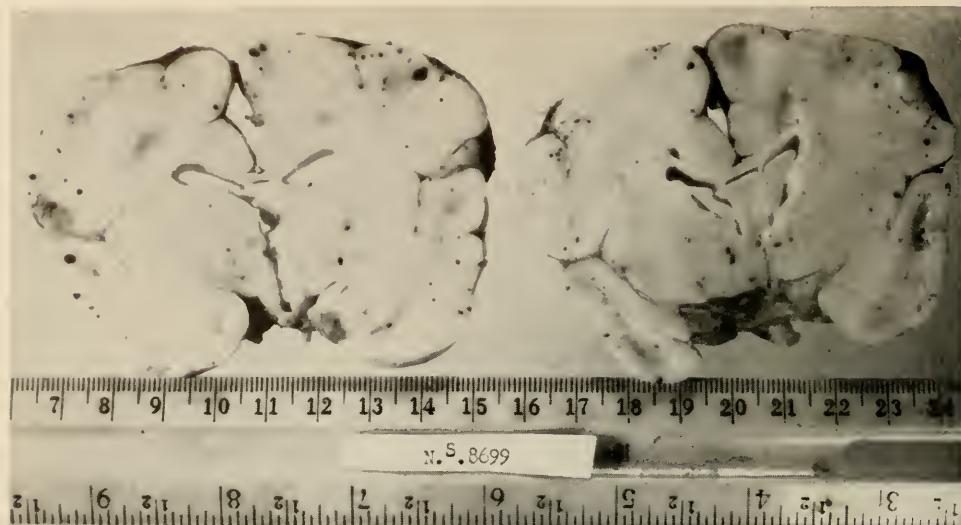


Fig. 4

Fig. 3

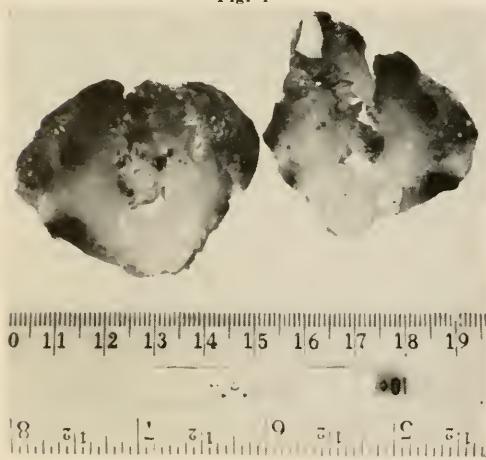


Fig. 3 & 4. Frontal Sections through the Cerebral Hemispheres: There are many scattered petechial hemorrhages in the gray matter.

cerebellum, the parenchyma was seen to be gelatinous and bloody, with many dilated vessels. Both dentate nuclei appeared to be disintegrated.

#### Microscopic

Sections of the spinal cord, stained by Nissl technique, showed a moderate degree of neuronal chromatolysis and nuclear edema. A fresh subdural hemorrhage was seen in the sacral region. Microscopic examination of the cranial dura revealed intradural hemorrhage without evidence of inflammatory change.

In all sections of the cerebral cortex, neuronal swelling and multiple, scattered petechial hemorrhages were present. In the right parietal lobe, there appeared to be loss of normal lamination, a decrease in the number of neurons with increase in glial elements; however, this was the only area that revealed this change. The number of neurons appeared within normal limits (Fig. 5). The occipital lobes showed increase in glial elements. These had swollen, very eosinophilic processes, and which stained well with hematoxylin showed clasmatodendrosis to Cajal

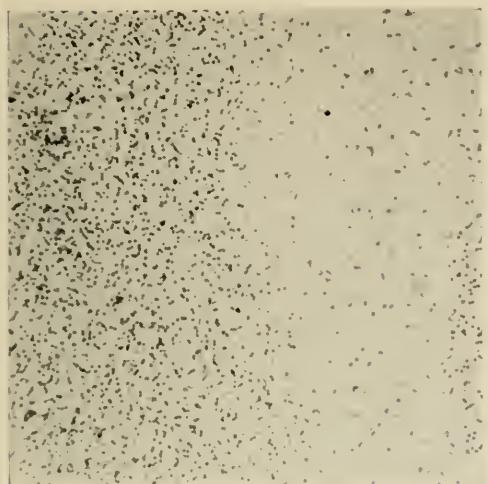


Fig. 5. Section of Cerebral Cortex (250x) (H&E): Note that neurons and laminar structure are within normal limits.



Fig. 6. Parietal Lobe White Matter (500x) (Cajal Stain): The gliae are swollen and increased in number.



Fig. 7. Cerebellum (100x): Leptomeningeal hyperplasia is evident.

stains. Similar changes in glial elements of the deep white matter were seen in the parietal lobes (Fig. 6). Both centra semiovale were edematous, with early swelling of neurons and glia.

The brain stem contained scattered petechiae. The only other lesion in the midbrain was a bilateral acidophilic neuronal degeneration of the oculomotor nuclei, with some increase in glia. There

was inflammatory reaction around the hemorrhages in the peri-peduncular regions of the distal midbrain and in the pons. Paraventricular neuroglia showed swelling similar to that described above. The leptomeninges everywhere appeared normal as did the intramedullary and meningeal blood vessels.

Examination of the hypothalamus and basal ganglia revealed only moderate increase in normal appearing gliae and swelling of neurons. The most outstanding lesions were found in the cerebellum.

The cerebellar leptomeninges were moderately hyperplastic (Fig. 7). The entire cerebellar cortex including the vermis showed a very thin, acellular and edematous molecular layer. No evidence of the external granular layer was found. Apparently 90% of the internal granule layer was either necrotic or showed swell-

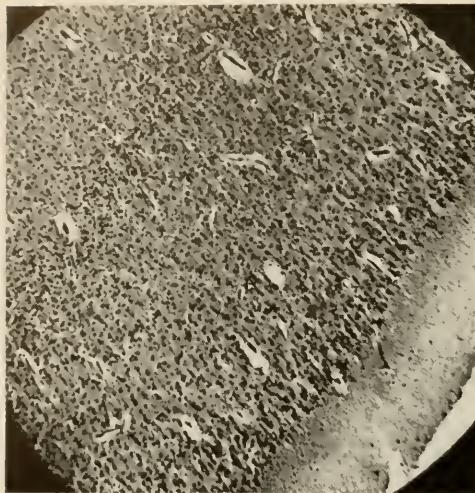


Fig. 8. Cerebellar Cortex (100x) (H&E): The internal granule layer shows loss of cellular elements and edema.

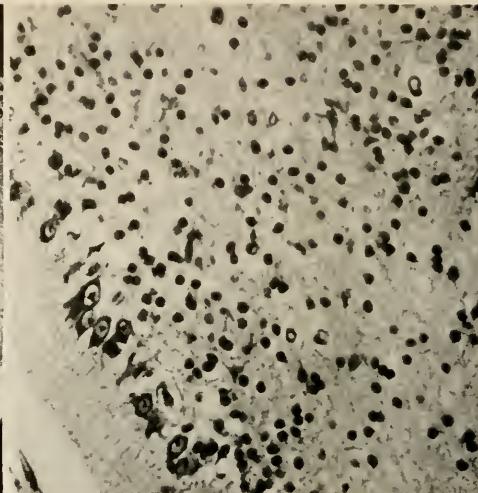


Fig. 9. Cerebellar Cortex (500x) (H&E): The Purkinje cells are in normal quantities, with nuclei showing degenerative changes.

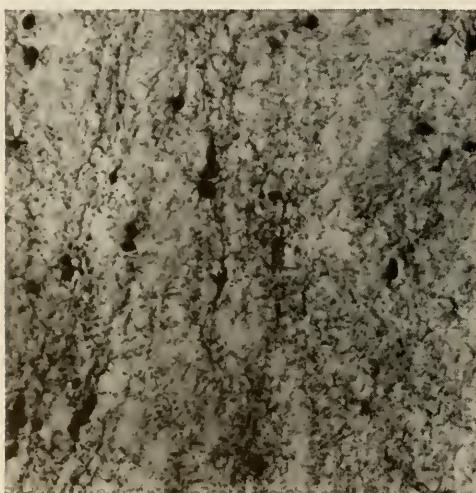


Fig. 10. Cerebellar Cortex (500x) (Cajal Stain): Note the edema and increased number of astrocytes and other glial elements.

ing of cell bodies and cell processes (Fig. 8). The Purkinje cells were seen in normal numbers, with evident shrinkage of their cytoplasm, with the nuclei showing swelling, pyknosis or karyolysis (Fig. 9). Bergmann cells were seen but very rarely. The matrix was very reticulated and edematous. The Cajal astrocyte stain showed a relative increase in the number

of astrocytes. All astrocytic elements were seen to be swollen, apparently increased in number and with very prominent processes (Fig. 10). Fresh petechial hemorrhages and some layer hemorrhages with inflammatory components were present throughout the cerebellum, with destruction of scattered areas. The dentate complexes appeared to be within normal limits.

#### Discussion

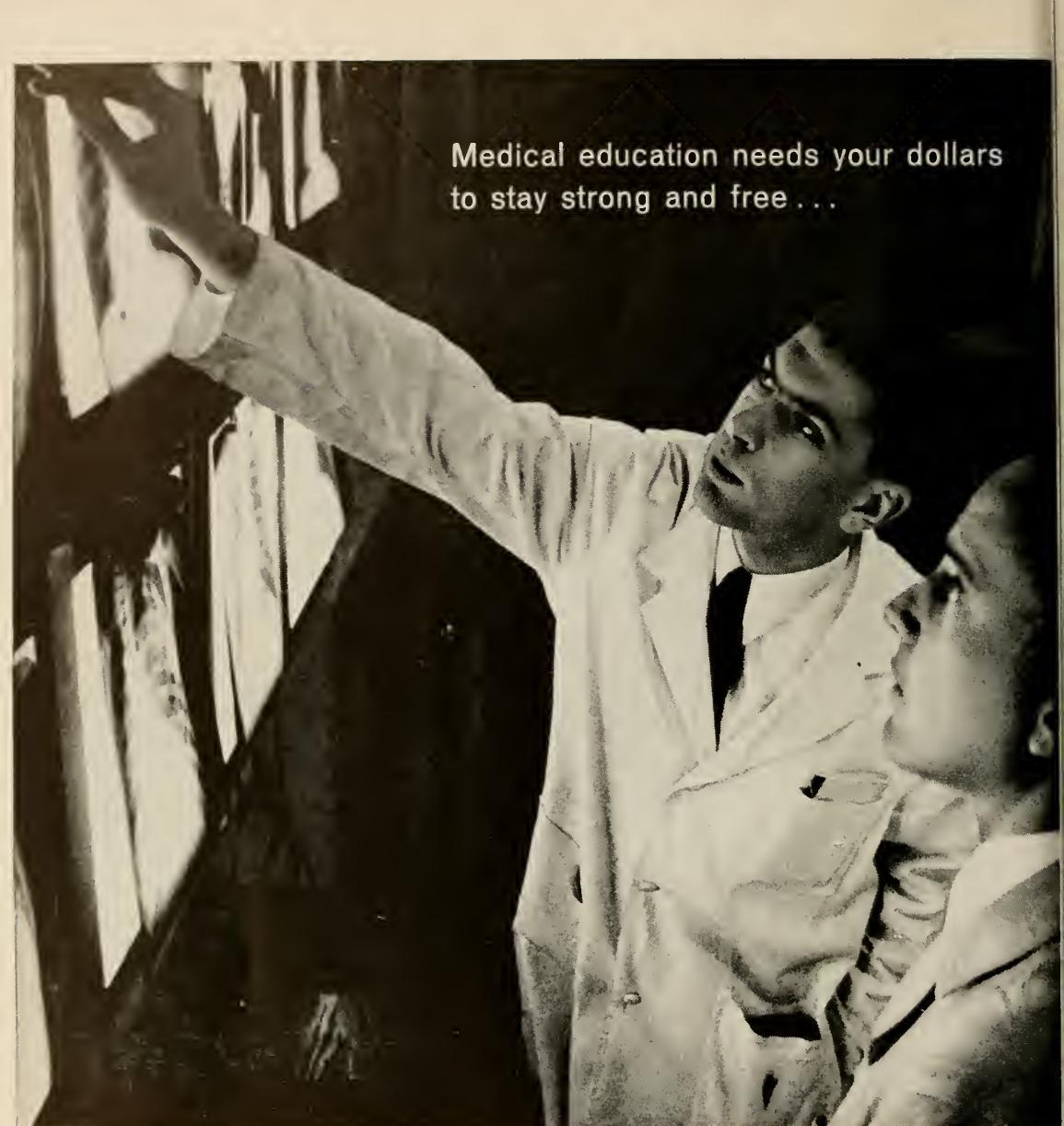
It has been clinically and experimentally shown that X-radiation exerts a damaging effect upon bone marrow with resulting aplastic anemia and hemorrhagic diathesis. Epilation is also a recognized symptom of exposure to high doses of radiation.

Although the notion that the brain is "radio-resistant" has been widely promulgated, this resistance has been shown to be only a relative one. As early as 1898, French workers demonstrated that heavy irradiation of small experimental animals resulted in paralysis and convulsions. It was soon discovered that young

er animals were more susceptible than adults to damage to the central nervous system.<sup>3, 4, 5, 7</sup> Recently Driscoll, *et al.*, have reported the findings of two, first-trimester human fetuses that were delivered by uterotomy soon after exposure to gamma radiation.<sup>6</sup> Although experimental or clinical descriptions of situations directly comparable to the case presented above have not been apparently mentioned, it has been shown repeatedly in animals and by Driscoll in humans that the fetal cerebellum is a very radiosensitive organ.<sup>6, 10</sup> After brain irradiation, granular layer loss, neuronal and glial swelling, petechiae, and perivasculitis have all been described in both adult human and experimental animals and in newborn and fetal experimental animals. These were, indeed (the perivasculitis excepted), the very changes found in the brain of this infant. There seems, therefore, to be sufficient evidence to allow one to conclude that the lesions described above were due to the intrauterine exposure to gamma irradiation.

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MEDICAL SCHOOL SECTION

*Dean's*  
LETTER

*Dear Members of the Alumni and Friends of  
the Medical School:*

The faculty's studies of curriculum and teaching have continued. As a result of these deliberations, a decision has been made to allow, in the schedule, free time to be used by the student to pursue areas of special interest if the student has the capacity to do so. Definite hours have been left open in the schedule for this purpose and are designated as "free time" or "elective time."

There will be faculty guidance and some supervision in the use of the unscheduled time. However, the student will be allowed to select the subject to be studied, or other use of free time, depending upon needs and ability of the student.

It is hoped that these arrangements will increase the resourcefulness of our students and allow the development of the individual in medicine with due consideration of their talents and interests.

Sincerely,

WILLIAM S. STONE, M.D.  
*Dean*

# New Faculty Appointments and Promotions

NEW FACULTY APPOINTMENTS and promotions at the School of Medicine have been recently announced by Dr. William S. Stone, Dean.

Those on the faculty promoted to associate professor are Dr. Charles S. Petty, Dr. Peter Rasmussen, and Dr. M. Wilson Toll in the department of pathology; Dr. Harold H. Bryant, pharmacology; Dr. Ruth W. Baldwin, Dr. Raymond L. Clemmens, Dr. Martin K. Gorten, and Dr. Gibson J. Wells, pediatrics; Dr. Maureen M. Henderson, preventive medicine; Dr. Isadore Tuerk, psychiatry; and Dr. C. Thomas Flotte, surgery.

New appointments to associate professorships on the faculty are Dr. Harle V. Barrett, department of preventive medicine and rehabilitation; Dr. Paul Fiset, department of microbiology; and Dr. David G. Simpson, department of medicine.

Dr. Barrett comes to the University of Maryland from the post of medical director for the Creighton University, Omaha, Nebraska. Formerly serving with several county health offices in Kansas and Oklahoma, Dr. Barrett had been at the Creighton University since 1957. He also served as a captain and preventive medicine officer with the U. S. Army for four years in the U. S. and Korea.

Dr. Paul Fiset was assistant professor of microbiology and assistant in medicine at the University of Rochester School of Medicine and Dentistry before joining the University of Maryland faculty. He had been associated with the microbiology department at Laval University Medical School, Quebec, and is a former director of Laboratory Services at Ste. Foy Veterans Hospital, Quebec, and associate director of microbiology laboratories at Strong Memorial Hospi-

tal, University of Rochester Medical Center. Dr. Fiset earned his B.A. from Laval University of Cambridge, London. He served as a major in the Canadian Officers Training Corps and the Royal Canadian Army Medical Corps Reserves.

Dr. David G. Simpson has been an associate in medicine at Columbia University since 1959. A veteran of the Royal Air Force Medical Service in England, India, and the Far East, Dr. Simpson received his M.D. from Queen's University in Belfast, Ireland. He is a former chief resident in chest service at Bellevue Hospital, New York, and instructor in medicine at Columbia University.

## Dr. Lisansky Named Post-Graduate Head

DEAN WILLIAM S. STONE has announced the appointment of Dr. Ephraim T. Lisansky, Associate Professor of Medicine and Assistant Clinical Professor of Psychiatry in the School of Medicine, as Chairman of the Committee on post-graduate studies.

An alumnus of the Johns Hopkins University, Dr. Lisansky received his M.D. from the University of Maryland in 1933. After an internship and residency at the Mercy Hospital, he served for a period in the Department of Pathology following which he served with distinction in the southwest Pacific during World War II conducting considerable research in problems of malaria. Following his return, he entered the private practice of medicine and shortly was certified by the American Board of Internal Medicine.

Becoming interested in psychiatry, he devoted a considerable part of his time

to the study of this specialty, eventually qualifying in it and ultimately reaching the rank of Assistant Clinical Professor in the Department of Psychiatry specializing in psychosomatic medicine. Dr. Lisansky has had considerable experience in post-graduate educational problems and has been organizer or co-organizer of many successful programs designed for practicing physicians including general practice and several specialties. Dr. Lisansky will assume the office vacated by Dr. Patrick B. Storey and will take over his new duties some time during the month of October, 1964.

### **Acting Director of University Hospital Appointed**

DR. WILLIAM S. STONE has announced the appointment of Mr. Donald G. Shropshire as Acting Director of the University Hospital following the resignation of Mr. Lad F. Grapski who moved to Chicago where he will serve as Director of Loyola University Hospital.

### **Dr. Allen Voshell Retires as Orthopedic Head**

DR. ALLEN FISKE VOSHELL, professor of orthopedic surgery at the School of Medicine since 1931, has retired, following a distinguished career in his specialty and in the development of post-graduate residency and refresher programs both in general medicine and surgery and particularly in orthopedic surgery.

Always active in the cause of the handicapped, Dr. Voshell was named man of the year in 1957 by the President's Committee to Promote Employment of the Handicapped. That year he was also recipient of the Baltimore Goodwill Industries annual award of merit. In 1961 he headed the State Planning Commis-

sion subcommittee on chronic illness whose recommendations led to the establishment of Maryland's first adult outpatient rehabilitation centers at the University Hospital and at the Johns Hopkins Hospital. He also organized crippled children's clinics in Ellicott City, Annapolis and Frederick County, serving as an examiner in all three. His service at the Annapolis and Frederick County clinics spans more than thirty years.

Dr. Voshell was active in the organization and development of post-graduate educational programs at the University of Maryland and served as associate director of the post-graduate committee under the leadership of the late Dr. Howard C. Bubert. At present, he is director and surgeon in chief at the Kernan Hospital for Crippled Children and is a consultant at the United States Marine Hospital. He was former chief consultant at the Ft. Howard Veterans Hospital and since 1936 has been a consultant to the Children's Bureau of the Department of Labor. He is a past-president of the American Board of Orthopedic Surgery and a past-vice-president of the American Academy of Orthopedic Surgeons. In 1941 he received the Academy's gold medal for his work on knee joints and the mechanics of ligaments. Dr. Voshell will continue his active practice of orthopedic surgery.

### **Dr. Sherrer, Former Pathology Resident, Joints Private Pathology Group**

DR. PAUL F. GUERIN and DR. WATSON KIME have announced the association of Dr. Edward L. Sherrer, Jr., in the practice of Laboratory Medicine, effective July 1, 1964.

Dr. Sherrer was formerly resident in pathology at the School of Medicine.

# Faculty NOTES

## Department of Anatomy

VERNON E. KRAHL, PH.D., Professor of Anatomy, has just returned from Saranac Lake, N. Y., where he conducted several pulmonary studies as a Visiting Investigator at the new, million-dollar pulmonary research laboratories of the Trudeau Foundation. As an approach to the better understanding of control mechanisms that operate in the regulation of mammalian respiration, Dr. Krahl has been studying the structure, function and innervation of respiratory apparatus of lower animal forms such as teleost fishes and several species of amphibians. A portion of this work, done in collaboration with Hollis G. Boren, M.D., Director of the Trudeau Foundation, was reported in a paper entitled "Ventilatory, Neural and Other Factors Influencing the Pulmonary Microcirculation of the Frog." Dr. Krahl presented the paper in March at the Third European Microcirculatory Conference in Jerusalem, Israel. The meeting was held at the Academy of Medicine at the invitation of the Capillary Research Laboratory of the Hadassah University Hospital. While in Israel, Dr. Krahl had an opportunity to visit several medical and research centers including the Academy of Medicine, Hebrew University, Hadassah Medical Center, Beilinson Hospital, the Weizmann Institute, and Technion City.

THEODORE F. LEVEQUE, PH.D., Professor of Anatomy, and his family sailed on September 10 for Strasbourg, France, where they will reside for one year during his Sabbatical Leave from the Department of Anatomy. Working with Dr. Fred Stutinsky in the Institut de Physi-

ologie Generale of the Université de Strasbourg, Dr. Leveque will continue his studies on neurosecretion and hypothalamic relationships.

## New Appointments

DR. FRANK H. J. FIGGE, Chairman of the Department of Anatomy, has announced the appointment of two new members to the faculty of his department.

FREDERICK J. RAMSAY, PH.D., on September 1, 1964, joined the faculty as an Assistant Professor of Anatomy. Dr. Ramsay, a native of Baltimore, received his B.S. degree at Washington and Lee University where he graduated *cum laude*, and received his M.S. and Ph.D. degrees at the University of Illinois. As an undergraduate Dr. Ramsay received a Department Scholarship in Biology and, at Illinois, a Predoctoral Fellowship of the U. S. Public Health Service. He taught courses in Gross Anatomy and Microanatomy at the University of Illinois and, during his service in the Armed Forces, Dr. Ramsay was assigned to the U. S. Army Chemical Research and Development Laboratories at Edgewood, Maryland. While at Edgewood he was also an Assistant, part time, in the courses of Gross and Microscopic Anatomy at the University of Maryland. Dr. Ramsay's research has included studies on spontaneous uterine tumors in mice, the antitumor effects of mouse serum and the effects of antiserum and adjuvant on tumor growth. He plans further studies on tumor growth, using tissue culture techniques. Dr. and Mrs. Ramsay and their three children are residing in Lutherville, Md.

GLADYS E. WADSWORTH, PH.D., has been appointed Assistant Professor of Anatomy, effective October 1, 1964. Dr. Wadsworth received her B.S. degree at State Teachers College at Stroudsburg, Pa., and her M.A. degree at Teachers

College at Columbia University in New York. After receiving her certificate in Physical Therapy at Walter Reed Hospital in Washington, D. C., Dr. Wadsworth served as Chief Physical Therapist at the U. S. General Army Hospital at Battle Creek, Michigan, and later, at Georgetown University Hospital in Washington, D. C. While completing her work for her Ph.D. degree at the University of Maryland under the direction of Dr. Eduard Uhlenhuth (who was, at that time, Chairman of the Department of Anatomy), Dr. Wadsworth was an Instructor in Anatomy. From 1956 to 1962 Dr. Wadsworth directed the Department of Physical Therapy at the University of Maryland, then for two years served as a consultant in the Division of Education of the American Physical Therapy Association in New York City. Dr. Wadsworth's research interests have been in the areas of body mechanics and in the anatomy of the pelvis; she is co-author of a paper on the latter subject with the late Dr. Eduard Uhlenhuth. She is a member of several professional societies, including the American Association of Anatomists and the American Physical Therapy Association.

### **Dr. Spicer Speaks at Symposium**

DR. WILLIAM SPICER, Associate Professor of Medicine, was among the speakers at the Symposium on Environmental Health Hazards sponsored by the Maryland Academy of Sciences and held on October 17 at Goucher College. Dr. Spicer spoke on "Air Pollution."

### **Dr. Kent E. Robinson Honored**

DR. KENT E. ROBINSON, Associate in Psychiatry at the School of Medicine, has been named Director of Out-Patient Services at the Sheppard and Enoch Pratt Hospital, Towson, Maryland.

### **Dr. Helrich Speaks at International Meeting**

DR. MARTIN HELRICH, professor and head of the Department of Anesthesiology at the School of Medicine, participated in the Eighth Scandinavian Congress of Anesthesiologists held in Turku, Finland, on August 6th. Dr. Helrich presented a paper entitled "Circulatory Compensation Following Analgesic Drugs in Man."

### **Faculty Participate in General Practice Scientific Assembly**

MEMBERS OF THE FACULTY OF THE SCHOOL OF MEDICINE were active on the program of the Annual Scientific Sessions of the Maryland Academy of General Practice held at the Southern Hotel October 17 and 18, 1964.

Dr. Harlan I. Firminger, Professor and Head of the Department of Pathology, presented a panel discussion on "Visible Tumors and Tumor-like Lesions of Interest to the General Practitioner." Associated with Dr. Firminger were Dr. Robert G. Chambers who spoke on "Visible Tumors and Tumor-like Lesions of the Head and Neck." Lesions of the Oral Cavity were discussed by Dr. Cyrus L. Blanchard, Professor of Otolaryngology. Dr. Raymond C. Vail Robinson spoke on "Visible Tumors and Tumor-like Lesions of the Skin" and Dr. Richard S. Munford, Associate Professor of Gynecology, spoke on "Similar Lesions of the Vulva and Vagina." Dr. Robert W. Buxton, Professor of Surgery, discussed "Visible Tumors and Tumor-like Lesions on the Anus and Rectum."

The afternoon session was highlighted by a panel entitled "The Initial Interview and Its Significance" led by Dr. Leo H. Bartemeier, Clinical Professor of Psychiatry at the School of Medicine, assisted by Drs. Ephraim T. Lisansky and Bernard R. Shochet.

## GRANTS

DR. FRANK H. J. FIGGE, chairman of the Department of Anatomy, has received a grant of \$990.00 from the Bressler Reserve Fund to aid his development of cinematographic techniques for use in medical education and research.

The American Cancer Society has awarded a grant of \$7,500.00 to Dr. Figge in support of his studies on the activity or augmenting influence of mammary tumor agent virus on leukemogenesis in the C3H<sup>F</sup> mouse.

The U. S. Army Research and Development Command has awarded a contract in the amount of \$30,000 to the Department of Anatomy for a continuing research program on comparative neuro-anatomy. The program is under the direction of Dr. Frank H. J. Figge. Collaborating in these studies are Ford Ebner, D.V.M., who is a Special Fellow in the Department of Anatomy, and Sven Ebbeson, Ph.D., Instructor in Anatomy, part time.

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DR. CHARLES CRISPENS, Assistant Professor of Anatomy, has received from the American Cancer Society a grant of \$1,900 for one year in support of his studies on a virus that produces biochemical lesions in mice.

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DR. JOSEPH WELLS, Assistant Professor of Anatomy, has received a research grant in the amount of \$45,021 from the National Institutes of Health of the U. S. Public Health Service. The grant, covering a three-year period, will support Dr. Wells' studies on the functional relationships of the Nucleus Dorsomedialis.

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DR. VERNON E. KRAHL, Professor of Anatomy, and a recent recipient of a

Career Research Award from the National Institutes of Health of the U. S. Public Health Service, has received a research grant from the same agency, in support of his studies on the finer structure of the mammalian lung. Now in its ninth consecutive year, Dr. Krahl's current grant has been extended an additional four years with financial support totaling nearly \$45,000.

## Computer Center Progresses

DR. GEORGE ENTWISLE, Director of the Health Sciences Computer Center, has announced that significant progress has taken place with respect to the development of the Computer Center to be located in the Howard Hall of the School of Medicine. Architectural drawings are being prepared and it is anticipated that the facility will be available in 1965. In the meanwhile, Mr. Robert L. Jones, currently Systems Engineer with the International Business Machines Corporation in Syracuse, has been named Manager of the Computer Center. Until such time as the area is renovated and the equipment installed, Mr. Jones will work in collaboration with the established communication center at College Park.

## Proceedings of the University of Maryland Biological Society to be Published by the *Bulletin*

HEREWITH WE AGAIN BEGIN the regular publication of the proceedings of the University of Maryland Biological Society. For many years the BULLETIN regularly carried these proceedings and abstracts. It is again a pleasure to reinstitute this regular feature.

# Proceedings of the University of Maryland Biological Society

November 26, 1963. Room 376, Howard Hall.

"The Lactic Dehydrogenase Agent: Its Possible Implications for the Virologist and the Oncologist." Charles G. Crispens, Jr., Ph.D., Department of Anatomy, School of Medicine.

## Abstract

The lactic dehydrogenase (LDH) agent was first reported by Riley *et al.* (*Science*, 132:544, 1960) who observed a 5- to 10-fold increase in the plasma LDH activity of test animals 48 hours after inoculation with tissue or organ extracts from mice bearing a variety of transplanted tumors. In this laboratory, studies were initiated to investigate the nature of the LDH agent and its relationship to murine tumorigenesis. Mice bearing 2 transplantable tumors (C57BRT or C1300) were observed to contain the agent; no evidence was found of its association with 4 human neoplasms.

The LDH agent is transmitted readily between mice in the same cage, but not between animals in different cages. It is excreted in saliva and urine at 36 hours, but not 5 weeks, after infection. In feces, it is excreted up to 15 weeks after infection, presumably until death. Preliminary findings suggest that the LDH agent is transmitted *in utero* and in the milk of lactating females.

Recent studies indicate that the LDH agent is both ether and sodium desoxycholate-sensitive. It is stable after storage for 6 months at  $-20^{\circ}\text{C}$ ., and inactivated by heating at  $56^{\circ}\text{C}$ . for 30 minutes. Heat inactivation is enhanced by Mg ions. Complete inactivation of the LDH agent is found after 300 minutes of ultraviolet irradiation or 48 hours treatment with formalin. There is a region of relative stability from pH 4.0 to 10.0.

Thin sections of pellets prepared from infected plasma show oval-shaped particles which measure  $15 \text{ m}\mu \times 45 \text{ m}\mu$ . The implications of these findings and results obtained in other laboratories are discussed.

December 17, 1963. Room 376, Howard Hall.

"Voltage Clamp Studies on the Effect of Internal Sodium and Potassium on Internally Perfused Squid Axons." William J. Adelman, Jr., Ph.D., Department of Physiology, School of Medicine.

## Abstract

Cleaned, isolated giant axons were perfused internally with solutions containing a variety of potassium and sodium ion activities. Solutions were made isosmotic by sucrose addition. The resting potential could be approximated closely by the following relation:

$$E_m = (RT/F) \log \left[ \left( a_{K_o} + 0.06a_{Na_o} \right) / \left( a_{K_i} + 0.25a_{Cl_o} \right) \right]$$

when internal potassium sulfate and phosphate and external sodium and potassium chloride solutions were used. When the internal and external  $K^+$  concentrations were equal at 10 mM, the steady state (K) current in the voltage clamp was zero upon making an appropriate leakage current correction. Similarly, when the internal  $Na^+$  concentration was zero, no outward initial membrane current was measured upon voltage clamping. The sodium potential, measured as the clamped voltage at which the initial membrane current turns from inward to outward, was found to vary with the internal and external sodium ion activity. A close agreement was obtained between sodium potential values and theoretical thermodynamic sodium equilibrium potential values. Upon low K internal perfusion, the steady state curve of inactivation of sodium conductance vs. membrane voltage was changed in slope and moved in the direction of depolarization yielding considerable activation at low membrane potentials. Unclamped, these low internal K axons were excitable with short depolarizing currents and gave almost normal amplitude action potentials despite low resting potentials.

January 23, 1964. Room 376, Howard Hall.

"Mechanisms of Tolerance to Endotoxin in Man." Sheldon E. Greisman, M.D., Departments of Medicine and Physiology, School of Medicine.

February 26, 1964. Room 377, Howard Hall.

"Field Studies in West Pakistan." Robert Traub, Ph.D., Department of Microbiology, School of Medicine.

April 1, 1964. Room 377, Howard Hall.

1. "Inter-relationship Between the Metabolism and Mechanism of Action of

Nitroglycerin." Philip M. Needleman, Fellow, Department of Pharmacology, School of Medicine.

2. "Experimental Infection of Murine Typhus in the Guinea Pig." Yehia El Batawi, M.D., Department of Microbiology, School of Medicine. (See Abstract)

3. "A Comparative Study of the Convulsant Bis (2, 2, 2 Trifluoroethyl) Ether and Its Analog Bis (2, 2, 2 Trifluoroethyl) Thioether." Robert S. Rozman, Ph.D., and Raymond M. Burgison, Ph.D., Department of Pharmacology, School of Medicine.

4. "Nature of the Binding between DNA and Protein in Deoxyribonucleoprotein." Stephan A. Lesko, Jr., Fellow, Department of Biochemistry, School of Medicine.

### Abstract

DNA is always found associated with histones and residual protein in mammalian tissues. The residual protein appears to be bound firmly to the DNA since exhaustive treatment of deoxyribonucleoprotein

with ice-cold 0.2 N HCl or 1 M NaCl, pH 3, followed by a subsequent treatment with detergent will not remove all of this protein. To study the nature of this binding, DNA was digested with DNase I alone or in combination with snake venom phosphodiesterase. The digest was fractionated on paper by high voltage electrophoresis using 0.1 M acetate buffer, pH 3.6. The U. V. absorbing nucleotide fractions were eluted and hydrolyzed with 6 N HCl at 110°C. for 18 hrs. Thin layer chromatography of the hydrolysates revealed several ninhydrin spots indicating the presence of peptide or protein material in the nucleotide fractions. At pH 3.6, most peptides and proteins would be expected to carry a zero or net positive charge, while the nucleotides or polynucleotides would carry net negative charges. Peptide or protein material found in the nucleotide areas must therefore be firmly bound to the negatively charged nucleotides. It is concluded that residual protein is firmly bound to DNA, perhaps through a covalent bond. (Supported by USPHS Grant No. GM 05874-06.)

### May 12, 1964. Castle Motor Inn, Baltimore.

"Pesticides, Fish, and Wildlife." John L. Buckley, Ph.D., Chief, Office of Pesticides Coordination, United States Department of Interior.

# Lecture Series For 1964-65 Announced

THE FOLLOWING SPECIAL LECTURES have been scheduled for the School of Medicine beginning with the November 10th Julius Friedenwald Memorial Lecture. Two lectures have already been presented, one by Dr. Paul Havens, Professor of Medicine and Microbiology at the Jefferson Medical College, who spoke on "Diagnosis of Complicated Liver Disorders."

The annual **Phi Delta Epsilon** lecture was presented by Dr. Allen R. Feinstein, Associate Professor of Medicine at the Yale University School of Medicine, who spoke on the "Changing Clinical Concepts in Rheumatic Fever."

The **Julius Friedenwald Memorial Lecture** will be held on Tuesday, November 10, 1964, at 11:30 a.m. in Gordon Wilson Hall by Joseph B. Kirsner, M.D., Professor of Medicine and Head of the Division of Gastroenterology at the University of Chicago School of Medicine, who will speak on "The Approach to Functional Disorders of the Gastrointestinal Tract."

The **Eighth Pincoffs Lecture** is scheduled for Monday, December 7, 1964, at 8:15 p.m., in Davidge Hall and will be presented by Arnold S. Relman, M.D., Professor of Medicine at Boston University School of Medicine and Chief of the Renal and Metabolic Division of Massachusetts Memorial Hospitals, who will speak on "Some New Ideas about Acid-Base Regulation: Clinical and Physiological Considerations."

**A. B. Baker, M.D.**, Professor of Neurology at the University of Minnesota School of Medicine, will discuss "Pathogenesis of Cerebrovascular Disease" on Tuesday, January 19, 1965, at 11:30 a.m. in Gordon Wilson Hall.

**Harry A. Feldman, M.D.**, Chairman, Department of Preventive Medicine of the Upstate Medical Center of the State University of New York, will discuss "Toxoplasmosis: Clinical Manifestations, Diagnosis and Management" on Tuesday, February 23, 1965, at 11:30 a.m. in Gordon Wilson Hall.

**Thomas McP. Brown, M.D.**, Eugene Meyer Professor and Chairman, Department of Medicine of the George Washington University School of Medicine, will discuss "Pathogenesis of the Rheumatic Disorders" on Tuesday, March 16, 1965, at 11:30 a.m. in Gordon Wilson Hall.

**The Uhlenhuth Memorial Lecture**, sponsored by *Phi Beta Pi* Fraternity, will be held on Tuesday, April 13, 1965, at 11:30 a.m. in Gordon Wilson Hall and will be presented by Barton Childs, M.D., Professor of Pediatrics at Johns Hopkins School of Medicine, who will speak on "Genetic Control of Disease."

**Lawrence E. Hinkle, Jr., M.D.**, Associate Professor of Medicine in Psychiatry and Director of Division of Human Ecology of Cornell University Medical College, will discuss "The Ecology of Human Illness and Health" on Tuesday, May 11, 1965, at 11:30 a.m. in Gordon Wilson Hall.

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## POSTGRADUATE COMMITTEE SECTION

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MRS. ELIZABETH B. CARROLL, *Executive Secretary*

Postgraduate Office: Room 201

Davidge Hall, 522 West Lombard Street, Baltimore, Maryland 21201

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### Postgraduate Courses for the 1964-1965 Academic Year

The following courses are scheduled to be given during the current academic year. Complete information may be obtained from the office of the Postgraduate Committee, School of Medicine, University of Maryland, Baltimore, Maryland, 21201.

#### Hughesville Course

To be given on eight consecutive Wednesdays beginning on September 16, 1964, at the Auditorium of the Southern Maryland Electrical Co-op in Hughesville, Charles County, Maryland, from 6:00 p.m. to 8:00 p.m. Tuition fee \$25.00.

#### Anesthesia Day

November 5, 1964, under the direction of Dr. Martin Helrich and Dr. Martin I. Gold. Designed for physicians and surgeons who are concerned to any extent with the administration of anesthesia, or who must, from time to time, be involved with problems incident to that field. To be given on the campus of the medical school in Baltimore. Tuition fee \$15.00.

#### Eye, Ear, Nose & Throat

December 3, 1964, under the direction of Dr. Cyrus L. Blanchard and Dr. Richard D. Richards. The practical problems of ophthalmology and otolaryngology with which the practicing physician must be conversant will be presented. To be

given on the Baltimore campus. Tuition \$15.00.

#### Neuropathology for Pathologists

Under the direction of Dr. John A. Wagner, this course will be full time from December 7 through December 12, 1964. Given at the practical level and including basic neuropathology, trauma, tumors, infections and degenerative diseases; surgical neuropathology; the neurological clinico-pathological conference; and practical drill in cutting, blocking, staining, and microscopic study of provided specimens. This course is limited to certified pathologists or those eligible for certification, and because of the individual attention given to each student only 12 applicants can be accommodated. To be given on the Baltimore campus. Tuition \$125.00.

#### Surgical Physiology

To be given on December 17, 1964, under the direction of Dr. Arlie R. Mansberger, Jr. The course will be concerned with pre-operative and post-operative physiology, functional derangements, and management of the clinical problems commonly presented by the surgical patient. Tuition \$15.00. To be given on the Baltimore campus.

#### Advances in Medical Science

To be given on Wednesdays from 3:00 to 5:00 p.m., beginning on January 13 and ending on March 31, 1965. The

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course is designed for physicians who wish to review the important advances in medical science. Emphasis is placed on a basic scientific approach to an understanding of the more common clinical problems and their management. To be given on the Baltimore campus. Tuition fee \$40.00.

### **Dermatology Day**

To be given under the direction of Dr. Harry M. Robinson, Jr., on January 21, 1965. This will be a clinical session in which many dermatologic disorders will be seen and examined by the attending physicians, followed by presentation and discussion of the problems of diagnosis and management of each entity. To be given on the Baltimore campus. Tuition fee \$15.00.

### **Clinical Anatomy**

To be given under the direction of Dr. Otto C. Brantigan one morning and one afternoon each week beginning with the second semester of the medical school. The course emphasizes the practical application of anatomy and anatomical principles in physical and x-ray diagnosis. Anatomical knowledge is related to the use of needling in performing diagnostic procedures and in treatment. The course is directed toward both the med-

ical man and the surgeon. Tuition fee \$150.00.

### **Clinical Cardiology**

February 4, 1965, under the direction of Dr. Leonard Scherlis. Designed to present to the practicing physician some of the advances in our diagnostic methods and management of the more common clinical problems in cardiology. To be given on the Baltimore campus. Tuition fee \$15.00.

### **Gynecology Day**

February 11, 1965, under the direction of Dr. Edmund B. Middleton. Consideration will be given to the practical problems encountered in the office and clinic care of the gynecologic patient. To be given on the Baltimore campus. Tuition fee \$15.00.

### **Hematology Day**

March 11, 1965, under the direction of Dr. Milton S. Sacks. The course will afford a basic review of diseases of the hematopoietic system. Illustrative peripheral blood and bone marrow slides will be utilized in connection with selected case material. Newer techniques of diagnosis and treatment will be discussed. To be given on the Baltimore campus. Tuition fee \$15.00.

# ABSTRACTS

of articles by  
faculty and alumni

## Iron Metabolism in Premature Infants—

Martin K. Gorten and Eleanor R. Cross.

*J. Pediat.*, 64:509, 1964.

The results of this study indicate clearly that iron fortification of an infant formula, offered to premature infants from the newborn period, affords effective prophylaxis against iron deficiency. Acquisition of hemoglobin iron keeps pace with the rapid growth of these infants. Hematologic observations from the tenth week of life are indistinguishable from those of healthy term infants receiving optimal nutritional care. On the other hand, the majority of premature infants who derive iron solely from iron-fortified and iron-containing solid foods, even when these foods are fed from an early age, develop true iron deficiency anemia. This nutritional anemia can be corrected effectively by the addition to the diet of a formula containing 12 mg. of elemental iron per quart.

## William Alexander Hammond—1828-1900

(Special Communication)—Albert F. Heck.

*JAMA*, 466, 1963

This is an illuminating concise study of an important physician of the mid 19th century, a former professor at the School of Medicine, who became Surgeon General of the Grand Army of the Republic, through whose foresight and determined energy the medical services of the army were completely revised with certain principles still applicable today.

While earning for himself a lasting degree of importance and immorality, he was court-martialed, dismissed from the army before the end of the war, only to return as a practitioner of neurology and founder of the Neurological Association. Later in his life his dismissal was vindicated by Acts of Congress in 1878. Hammond was not only prophetic but was an author of considerable repute, having published a textbook of neurology which went through seven editions in ten years. He founded the Armed Forces Institute of Pathology and directed the publication of the *Medical and Surgical History of the War of the Rebellion*.

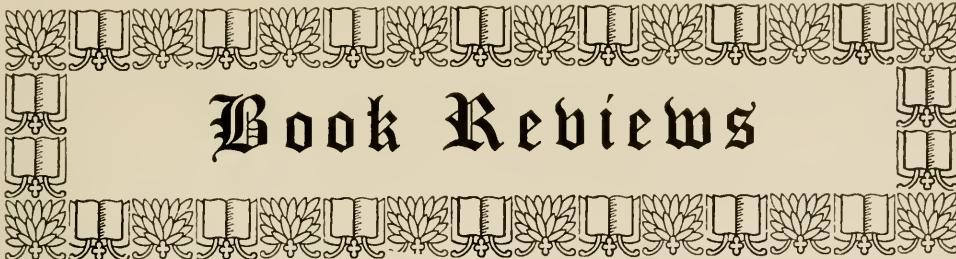
## Retinal Involvement in Adult Cytomegalic Inclusion Disease—Morton E. Smith,\* M.D.

*A.M.A. Arch. Ophthal.* (July, p. 44) 1964

Cytomegalic inclusion disease is rarely encountered in the adult. Of 54 cases in the literature, none contained histologic evidence of the disease in the eyes. A case of the disease in a 61-year-old Negro woman with the characteristic inclusion-bearing giant cells found in the retinas of both eyes is described.

The importance of recognizing this disease in debilitated patients who have been on long-term treatment with various drugs is stressed. Eighty pairs of eyes from patients in this category who came to autopsy were reviewed, but cytomegalic inclusion bodies could not be demonstrated.

\* Ophthalmic Pathology Branch, Armed Forces Institute of Pathology, Washington, D. C. 20025.



# Book Reviews

**The Cytologic Diagnosis of Cancer.** 2nd Ed.  
Ruth M. Graham. 377 pp. Illus. W. B.  
Saunders Company, Philadelphia and Lon-  
don. 1963.

The first edition of Mrs. Graham's book, although published in 1950 when cytology was in its early stages, has continued to be a valuable book in the training of technical personnel and as a guide to residents in pathology. This new edition has been considerably expanded and some sections, where new knowledge has become available, have been rewritten. The basic purpose of the book, to guide the student of the subject in the interpretation of cellular morphology, has remained unchanged. Many of the photographs and plates from the first edition have been reused and many new illustrations have been added. The quality and clarity of the illustrations is uniformly excellent. The chapters which have been added bring the book up to date and discuss several difficult and controversial areas. Postradiation smears, both positive and negative, are thoroughly discussed. Separate chapters have been added on dysplasia in cervical smears, the cytology of carcinoma of the esophagus, the cytology of material aspirated from solid masses, and a short chapter on cellular changes in pernicious anemia is included. The latter chapter seems to predict more and more application of the technique to the diagnosis of non-malignant conditions. There is no chapter on fluorescent cytology but this is not a great omission. The text also lacks a general discussion of the pathogenesis of the conditions discussed. The addition of such a discussion would, however, expand the volume to an unusable size and this aspect of the subject of neoplasia is much better covered in textbooks of pathology. The references are well chosen and extensive.

The text should become a standard in the training of cytological technicians as was the first edition. It will also be of great value to residents in pathology.

HOWARD M. WISOTZKEY, M.D.

**A Handbook for Ambulance Room Attend-  
ants** by C. E. Watson. Pp. 120. The  
Williams and Wilkins Co., Baltimore. 1961.  
\$1.95.

This is a short, well written first aid manual directed primarily to the layman working in an industrial first aid station. Included are simple instructions for the treatment of injuries and infections. There are appendices describing the more useful dressings, with a short, clearly written glossary of medical terms. The index is adequate. A simple guide to the assessment of the severity of illness is one of the unique chapters in this book.

This volume is a good introduction to modern first aid practices for the industrial clinic attendant.

MARVIN N. GOLDSTEIN.

**Case Studies in Obstetrics and Gynecology**  
by F. Jackson Stoddard, M.D. Pp. 298. W.  
B. Saunders Co., Philadelphia, Pa. 1964.  
\$8.50.

Dr. Stoddard states in his preface that this book "is designed to complement and make more meaningful his (the student's) earlier formal training and experience." To achieve this end, the author has selected 60 case histories that illustrate well the commoner pathologic entities one encounters in the field of Obstetrics and Gynecology. Each case is discussed from the point of view of differential diagnosis and treatment; a simulated question and answer exchange follows; then a follow up of management is presented, if appropriate.

The cases are very well selected, because the author has resisted the temptation to recount the bizarre example. Instead he presents the typical case, which makes it more meaningful to the reader. Although only 60 subjects are formally presented, a much broader range of topics is covered through the discussion and question and answer selections of the book.

The case histories themselves are well edited, with emphasis on the important points. The

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stock phrases that one hears so commonly at conferences as part of such presentations are noticeably absent.

In discussing the differential diagnosis and therapy, the author is logical in the former and conventional in the latter. His management reflects what is good practice everywhere. Some unusual methods of management that are regional are recounted through the question and answer sections for completeness.

Illustrations and tables are appropriate and are certainly easy to follow. The layout of the text makes for effortless reading.

The references listed at the end of each case are highly selected, but intentionally so. They are key articles or reviews that can be used as points of entry into any esoteric area that might strike the individual reader.

This text could be useful to anyone with a basic knowledge of the field. For the advanced student it would help consolidate many seemingly disconnected facts into a memorable disease entity. For the non-specialist it could keep him alert to the unusual in the framework of his own practice. For the specialist it affords a quick review and handy reference to many processes that are rare even in highly selected populations.

This book is therefore highly recommended.

JAMES P. DURKAN, M.D.

**Physiologic Principles of Surgery** edited by

Leo M. Zimmerman and Rachmiel Levine.  
Pp. 988. W. B. Saunders Co., Philadelphia,  
Pa. 1964. \$20.00.

This is the second edition of a rather unique book, which very successfully fills a great void in the surgical literature. The modern surgeon must strive for a greater understanding of normal human physiology and the changes brought about by injury, disease, anesthesia, and operation. This book offers a concise and critical appraisal of practical surgical physiology by 50 eminent surgeons and physiologists.

The first 13 chapters deal with such topics as the metabolic changes associated with injury, infections and antibiotics, tissue transplantation, shock, and nutrition. A new chapter has been added on oncology. The remaining 24 chapters are arranged by organ system. All chapters are current and well written, but vary considerably in detail and subject treatment. The book is quite readable with numerous helpful illustrations, tables, and graphs. The index

is excellent. The bibliography varies from chapter to chapter but is generally complete.

This fine book is heartily recommended to students, and a well worn copy should be in every surgeon's library.

CARL F. BERNER, M.D.

**Outline of Medical Parasitology** by John E. Larsh. Pp. 342. McGraw-Hill Book Co., New York, N. Y. 1964. \$6.95.

In the past few decades the horizon in the concept of parasitic diseases has widened beyond most physicians' expectations. One may reasonably estimate that even in the United States, 50 million citizens harbor parasites at the present time. Many physicians serving in the United States Armed Services have encountered what were previously considered exotic diseases and have had to review the parasitology learned in the second year of medical school. Indeed, with the "cold war," World Health Organization activities, private industry expansion into foreign lands, and the astounding ease of world travel, the physicians in this country are faced with the problem of recognizing and treating parasitic infections previously considered rare and unimportant curiosities. With this background, the teaching of parasitology in medical schools has taken on a greater import. It is also recognized that medical schools are faced with ever increasing subject matters to teach to the medical students within a relatively short period of four years. This book by Dr. Larsh reflects the experience of 20 years in teaching this subject to medical students and admirably succeeds in the purpose stated in the preface—to present an outline not designed to take the place of standard textbooks, but to present an inexpensive aid for orientation to the subject; to give a general survey of the field before beginning the course, and to lay a growing foundation during the course. The outline is directed specifically to the medical students, but it should be very useful for medical technology students, pathology residents, and to those individuals who desire an inexpensive, up-to-date source of refresher material in preparation for the examinations. The only comparable work which this reviewer knows of is Sawitz's "Medical Parasitology."

The subject matter is introduced logically and the text is written clearly and in a style that would appeal to a neophyte in this field. The diagrams are simple and illustrate the

## MEDICAL SCHOOL SECTION

important details without confusion. The one attractive feature that the reviewer has not seen before in a book on parasitology is the presentation of case histories which helps to coordinate the basic science aspect with the clinical aspect. It must be recognized that this text must be used in conjunction with actual laboratory sessions. (An atlas, such as Spencer and Monroe, the color atlas of intestinal parasites, Chas. C Thomas, is helpful here.) In addition, the student should have access to standard larger textbooks, such as the most recent edition of Craig and Faust. Another attractive feature of this type of book is the ability to revise frequently and inexpensively, incorporating recent developments in this field.

ROBERT Y. KATASE, M.D.

**Cancer of the Stomach** by William H. ReMine, M.D., James T. Priestly, M.D., Joseph Berkson, M.D., and members of the staff of the Mayo Clinic. Pp. 255, illus. W. B. Saunders Co., Philadelphia, Pa. 1964.

This monograph is intended as a reassessment of an old and difficult problem, carcinoma of the stomach. It contains a plan for management based on a large group of cases at the Mayo Clinic. Its purpose is to decrease the "discrepancy between incidence and operability."

Early detection is the key to improved survival and great emphasis is placed on methods of diagnosis. There are separate chapters on recognition of gastric neoplasms, roentgenology, gastroscopy, and special procedures, *i.e.*, gastric analysis, cytology, tetracycline fluorescence, and autoradiography, as well as blood typing and electrophoresis of gastric juice. An excellent chapter is included on indications for operation and certain key decisions to be made at the operating table. Surgical technique is covered in detail with numerous alternative procedures critically discussed. Postoperative care is well covered. There is an outstanding discussion of pathology of gastric tumors, as well as an extensive statistical summary.

The advantages and disadvantages of the book are the same—it expounds in a rather dogmatic way the philosophy of the Mayo Clinic group, which gives the text clarity and continuity in expressing an excellent approach to the problem. However, other authorities are largely ignored.

The bibliography is only fair. The index is complete. Illustrations are of high quality and complement the text. This monograph is recommended as an excellent source of information for the general practitioner and internist, as well as the general surgeon.

CARL F. BERNER, M.D.

**Current Therapy 1964** edited by Howard F. Conn, M.D. Pp. 797. W. B. Saunders Co., Philadelphia, Pa. 1964. \$13.00.

This is the 16th edition compendium which includes a wide range of therapeutics. The book is unique in that it treats each subject briefly but with reasonable thoroughness. The contributors are most competent and total 317. There is no attempt to give different points of view, but rather each problem is discussed according to the method of the contributor. This, in my view, is desirable since it offers to the reader who seeks information by a quick reference an opportunity to focus clearly and directly on a sound method of management. There is an excellent group of consulting editors. The material is well indexed, well written, concise, and most appropriate for the purpose for which it is intended.

The book is divided into 15 sections including, in addition to the major systems, obstetrics and gynecology, physical and chemical injuries, the infectious diseases, and the urogenital tract. There are no lists of references. There is no attempt to discuss the disease except as it pertains to an understanding of therapy. The reader must first have made the diagnosis. The book will be of most use to the internist, generalist, resident, intern, and medical student.

EDWARD F. COTTER, M.D.

**The Motor Endplate** by Sumner I. Zacks, M.D. Pp. 321, illus. W. B. Saunders Co., Philadelphia, Pa. 1964. \$17.00.

In 1961 and 1962 Dr. Zacks, together with Dr. Joe M. Blumberg and others, published a series of articles on the motor endplate in Myasthenia Gravis as well as some studies of this structure in animal material. The present monograph is an expansion of that work. It includes a review of the history of thought on the neuromuscular junction as well as chapters on physiology, histochemistry, and pathology. The text is illustrated by numerous light and electron micrographs as well as tables and

line drawings, the latter being of particular value in illustrating the present concepts of the ultrastructural anatomy. Also included is a discussion of those areas as yet untouched by investigative work. The author's own views are liberally represented throughout, pointing out areas where doubt exists or further work must be carried out. A compilation of staining methods for neuromuscular material is presented in the appendix, and the index is complete and well chosen. Since this area of human disease is far from complete, the book cannot be complete. It is rather a compilation of that which has already been started and will serve those interested in neuromuscular disease as a guide for further study and experimentation.

HOWARD M. WISOTZKEY, M.D.

**Aids to Physical Chemistry**, 3rd ed. A. J. Grimes. Pp. 292. The Williams & Wilkins Co., Baltimore, Md., 1963. \$3.75.

This is a small, ready reference concerning the basic facts of physical chemistry as applied to medical problems. The main object of the pocket-sized volume is to provide concise basic information on physical-chemical phenomena related to biological activity. The scientific method, laws of chemical combination, atomic structure, isotopes, valency, the various states of matter, their changes, solutions, the rate of chemical reaction, equilibrium, catalysis, ionization, electro- and thermo-chemistry, absorption, and chromatography are the chief chapter headings. The text is simple and non-mathematic. An appendix of important general data is supplied.

J. A. W.

**Physical Examination of the Surgical Patient** by J. Englebert Dunphy, M.D., and Thomas W. Botsford, M.D., 3rd Ed. Pp. 396. W. B. Saunders Co., Philadelphia, Pa. 1964. \$8.50.

This book emphasizes the necessity of a careful and thorough physical examination in the evaluation of the surgical patient. The authors deplore the tendency of modern medicine to de-emphasize this most important facet of the surgical workup. Technique receives its proper emphasis, but, at the same time, the authors discuss certain diseases and their pathophysiology in relation to physical signs.

Three chapters have been added to the 3rd edition—examination of heart patients with a

surgical condition and burned patients. A section on emergency resuscitation is also included. A chapter deserving special praise is devoted to the examination of the acutely injured patient.

Many photographs have been added and line drawings redone. All illustrations are of excellent quality and refer directly to the text, which is lucid and easily readable. The bibliography is good and the index complete.

This volume serves its stated purpose well. It should be of great value to students, house officers, and practitioners of all disciplines, medical and surgical.

CARL F. BERNER, M.D.

**Lysosomes** (Ciba Foundation Symposium), ed. by A. V. S. de Reuck, M.Sc., D.I.C., A.R.C.S., and Margaret P. Cameron, M.A. 446 pp. Little Brown and Company, Boston, Mass. 1963. \$11.50.

In 1955 De Duve formulated the interpretation that many hydrolytic intracellular enzymes (e.g.: acid phosphatase, cathepsin, and ribonuclease among several) were associated with cytoplasmic particles which he isolated and called lysosomes. This formulation was suggested from his work on rat liver homogenates. Since that time considerable work, both biochemical and cytologic, has been done to establish the fact that several hydrolases important in cellular metabolism are contained in cytoplasmic organelles bounded by a lipoprotein envelope, and that materials ingested in bulk by the cell are metabolized in part by the enzymes in these so-called hydrolytic sacs. Current thinking is that most cells have these organelles, but especially prominent cell types containing relatively greater amounts are liver cells, proximal convoluted tubule cells of the kidney, and macrophages.

This excellent Ciba symposium held on Feb. 12 to 14, 1963, permits an assessment of the present status of the lysosomes as well as their significance in cell structure and function.

De Duve and Novikoff open the symposium by relating how the definition and concept of lysosomes evolved, dividing the class of organelles into four types: 1) a storage granule, or primary lysosome; 2) digestive vacuoles, which have incorporated environmental substances of all kinds, and which in some way receive the catabolic enzymes from the storage granules; 3) autophagic vacuoles, which form in the cytoplasm to degrade other organelles,

## MEDICAL SCHOOL SECTION

such as mitochondria; and 4) residual bodies, which contain the materials not easily attacked by the hydrolases from the storage granule.

Thereafter the contributions of various authors relate the methodology and animal models which have been used to uncover the function of this cytoplasmic body. It is shown that the organelles are present in protozoa as well as metazoa. They are important in embryologic differentiation and organism development, the latter as illustrated by Weber, who describes their presence during the sequence of the tail atrophy of tadpole metamorphosis. In this latter situation they appear to be mainly associated with the macrophages which are in abundance among the degenerating tail muscle cells.

Another area of involvement is discussed by Dingle, who relates the part lysosomes appear to play in the degeneration of cartilage under the action of vitamin A. This vitamin appears to reduce the stability of lysosomes, whose enzyme contents in turn degrade surrounding connective tissue.

Cohn, Hirsch, and Wiener discuss the granules of the polymorphonuclear leukocyte as being an example of so-called primary lysosomes, which apparently discharge their hydrolytic contents into the phagocytic vacuoles developing around ingested material.

In human disease De Duve relates the work of Hers (p. 22) who hypothesizes that one of the forms of glycogen storage disease has as its basis the lack of a lysosomal  $\alpha$ -glucosidase, which is necessary for the breakdown of glycogen.

As in past Ciba Foundation volumes considerable information and insights are generated by the interplay of symposium participants in the general discussions following each paper.

PETER RASMUSSEN, M.D.

**Primary Intramedullary Tumors of the Spinal Cord and Filum Terminale** by Johan L. Slooff, M.D., James W. Kernohan, M.D., and Collin S. MacCarty, M.D. Pp. 255, illus. W. B. Saunders Co., Philadelphia, Pa. 1964. \$13.50.

The rarity of primary tumors of the spinal cord makes it unlikely that any one person will have a wide experience with them. The publication of a careful study of a large number of such neoplasms is, therefore, a noteworthy event. This monograph represents the collective experience with 301 of these tumors seen at the Mayo Clinic. It contains a discussion of the various histologic types of spinal cord tumors including both their clinical and pathologic characteristics. A series of 42 case reports is used to illustrate the material. Gross and microscopic photographs as well as a number of tables are used to illustrate the text. The appendix presents the pertinent data on all the cases in tabular form. The bibliography is comprehensive and well chosen. Although the volume is primarily of interest to the neurologist, neurosurgeon, and pathologist, any physician who from time to time must deal with these tumors will find this a valuable source of information.

HOWARD M. WISOTZKEY, M.D.



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## ALUMNI ASSOCIATION

### SECTION

#### President's Letter

##### *Fellow Medical Alumni:*

I recognize and sincerely appreciate the honor and privilege afforded me as president of the Medical Alumni Association. I extend to you all my thanks and pledge you the best of my abilities and energies in service this year. May I take this opportunity to urge all of you to take a knowledgeable interest in your Association. There are those who have served you well; in advancing the areas of concern of your organization and continuing the effectiveness of the group, in relating the association to the "changing world" of the School of Medicine of which we are, and should continue to be, such an integral part. It will be difficult to follow in the footsteps of my predecessor, Dr. Gibson J. Wells, for "Gibbie," as your president and in his other service capacities on the Board of Directors, has had great interest and enthusiasm and has worked most diligently. Our Executive Director, Dr. William H. Triplett, continues to oil the complex mechanism and diplomatically guide the "faltering steps" of each incoming president. One faces a job of this nature with greater assurance knowing that "Bill" is about. Our new treasurer, Dr. Walter Karfgin, has a very big pair of shoes to step into. We all sincerely appreciate the tremendous expenditure of ability and time that our retiring treasurer, Dr. Howard Mays, made. Finally, although this may be repetitious, I want to express to Dr. Edward Cotter the thanks and appreciation of our entire organization for his tremendous job as general chairman of our first "Maryland Medical Reunion." It is true that many other people contributed to the success of the meeting and I cannot begin to list them all nor would I wish to overlook anyone, so to all others, from the various participating groups, from the Medical Alumni Association, I say thanks.

I can at this time give you the date of our next Annual Alumni Meeting. It will be Thursday, June 3rd,

ALUMNI ASSOCIATION SECTION

1965. Won't you, this far ahead, circle your calendar on that date and plan to attend. Perhaps you have been putting off "going back"—perhaps this will be a particular reunion year for your class. Interest in and loyalty to your school would be reason enough to be here—all other reasons are added dividends. See you then!

The nature of our organization is such that the Board of Directors must conduct the business affairs as representatives for you. Nevertheless, it is your organization and we wish to serve it to the best interests of all concerned and to the furtherance of the policy that ours is an outstanding School of Medicine. We welcome your thoughts—be they commanding or criticizing—and would strive to pursue a course molded by your interested help. The editor of our BULLETIN, Dr. John A. Wagner, who serves us so capably and well, would welcome alumni news from you. We all like to read squibs about our classmates and friends (and even see our own name in print). This tends to tie us more closely, too. Jot down the tidbits of interest and mail them off to John.

Contrary to the thoughts of the poet, we do have a chance "to pass this way again." Take advantage of it—visit your school this year. Be interested in your Alumni Association and support its objectives. May this be a meaningful and effective year for our Association.

Most sincerely,

J. HOWARD FRANZ, M.D.

*President*

# Alumni Day and Annual Meeting June 3, 1965

## Classes Of 1915 and 1965 To Be Honored At Annual Banquet At Lord Baltimore Hotel

The Alumni Association has announced that the annual alumni reunion day, scientific sessions and banquet will be held on Thursday the 3rd of June, 1965, beginning with scientific sessions held in the morning, the presentation of the annual alumni award and gold key with specific honors being paid the classes of 1915 and the graduating class of 1965. A special committee has been nominated by President John Franz of the Alumni Association consisting of Doctors Howard Mays and John O. Sharrett who will be co-chairmen of the reunion classes. This year the classes of 1920, 1925, 1930, 1935, 1940, 1945, 1950, 1955 and 1960 will plan their customary five-year interval reunions. The alumni co-chairmen, five-year captains, will shortly be nominated.

A committee headed by Dr. Albert E. Goldstein and including Doctors William H. Toulson and Ernest I. Cornbrooks are receiving nominations for the honor alumnus for 1965. It is expected that a decision will be reached prior to January 1, 1965, with an early announcement of the honor recipient to be made in a forthcoming edition of the BULLETIN. For the first time reunion classes will not be held for the Baltimore Medical College as the last fifty-year class was honored in 1964. Reunion classes will include the College of Physicians and Surgeons and the School of Medicine of the University of Maryland. Members of these classes are listed

### CLASS OF 1915 PHYSICIANS AND SURGEONS

LEE K. FARGO, M.D.  
8155 Loch Raven Blvd., Baltimore, Md. 21204  
ANTONIO FERNOS-ISERN, M.D.  
House Office Bldg., Washington, D. C. 20025  
EDWARD E. FITZPATRICK, M.D.  
317 36th Ave., N.E., St. Petersburg, Fla. 33704  
LUIS FELIPE GONZALEZ, M.D.  
Box B, Rio Grande, P. R.  
R. BASIL LINGER, M.D.  
321 W. Main St., Clarksburg, W. Va.  
WM. HENRY McCALLION, M.D.  
308 Passaic Ave., Springlake, N. J.  
WM. RAYMOND MCKENZIE, M.D.  
117 Taplow Rd., Baltimore, Md. 21212  
VERNON LITZINGER MAHONEY, M.D.  
614 N. 4th Ave., Tucson, Ariz. 85705  
THEODORE H. MORRISON, M.D. Apt. 704 West  
100 W. Cold Spring Lane, Balto., Md. 21210  
JUAN J. NOGUERAS, M.D.  
468 Caribe St., Box 1214, San Juan, P. R.  
COSTA ENRIQUE L. PURCELL, M.D.  
12 Vives St., Ponce, P. R.\*  
ERNEST M. G. RIEGER, M.D.  
656 Orebard Pkwy., Niagara Falls, N. Y. 14301  
HARRY LEE ROGERS, M.D.  
6 Upland Rd., Baltimore, Md. 21210  
GARRETT E. SPROWLS, M.D.  
Genl. Delivery, Globe, Ariz.\*  
ELMER B. STALEY, M.D.  
323 E. 11th Ave., Tarentum, Pa.  
PAUL BEADLE STEELE, M.D.  
509 Liberty Ave., Pittsburgh, Pa. 15222  
RAYMOND JEROME STOCKHAMMER, M.D.  
115 E. 61st St., N. Y., N. Y.  
J. M. THORUP, M.D.  
4927 N. E. 30th Ave., Portland, Oregon 97211

—  
\* Last known address.

### Deceased

ADLAI E. CALLAGHAN, M.D.  
JOHN RICE ANDERSON, M.D.

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 BOLESLAW H. TADEUSICK, M.D.  
 ISRAEL TRACHTENBERG, M.D.  
 FRED P. WELTNER, M.D.  
 RUFUS WOODALL, M.D.

LOUIS DIENER, M.D.  
 2449 Eutaw Pl., Baltimore, Md. 21217  
 JOSEPH LEE DOWLING, M.D.  
 207 Waterman St., Providence, R. I. 02906  
 MICHAEL JOS. EGAN, JR., M.D.  
 210 E. Liberty St., Savannah, Ga. 31401  
 L. L. GORDY, M.D.  
 5106 Harford Rd., Baltimore, Md. 21214  
 SAMUEL H. GREENBERG, M.D.  
 411 W. 7th St., Los Angeles, Calif. 90014\*  
 GERALD LEO HIGGINS, M.D.  
 317 Washington St., Avon, N. J.\*  
 ROBERT B. HILL, M.D. (Brig. Gen. Ret'd)  
 Southern Pines, N. C.  
 WILLIAM H. JENKINS, M.D.  
 2024 R St. N.W., Washington, D. C., 20009  
 WM. R. JOHNSON, M.D.  
 Medical Arts Bldg., Baltimore, Md. 21201  
 ROY R. KERKOW, M.D.  
 505 Yakima St., Wenatchee, Washington  
 HERMAN WARNER KRANTZ, M.D.  
 Address Unknown  
 ADDISON LEROY LEWIS, M.D.  
 214 N. Union Ave., Havre de Grace, Md. 21078  
 OSCAR VERNON LINHARDT, M.D.  
 710 N. Bradford St., Baltimore, Md.\*  
 WM. CLEVELAND MILLER  
 7 Brooks Ave., Gaithersburg, Md. 20760  
 DANL. BRUCE MOFFETT, M.D.  
 1150 Conn. Ave. N.W., Washington, D. C. 20006  
 CHARLES HOWARD MOSES, M.D.  
 919 Linden Ave., Sharon, Pa.  
 CHAS. W. MYERS, M.D.  
 R. D. 18, Box 256, Indianapolis, Ind. 46224  
 MILFERT WEAVER MYERS, M.D.  
 106 E. Market St., Warren, Ohio\*  
 ALBERTO PORTUONDO Y DEL PINO, M.D.  
 Address Unknown  
 MOSES RASKIN, M.D.  
 6221 Greenspring Ave., Baltimore, Md. 21209  
 WM. T. RUARK, M.D.  
 Pinecrest Sanatorium, Beckley, W. Va. 25801  
 PLAYFORD LORENZA RUSH, M.D.  
 Address Unknown  
 LUCIUS C. SANDERS, M.D.  
 20 S. Dudley St., Memphis, Tenn. 38103  
 HARRY SCHNUCK, M.D.  
 1203 San Diegato St., Encinitas, Calif.  
 LOUIS W. SCHREIBER, M.D.  
 261 El Camino Dr., Beverly Hills, Calif.\*  
 FRANK EARL SHIPLEY, M.D.  
 Savage, Md. 20863  
 CHAS. E. SIMA, M.D.  
 2074 E. Belvedere Ave., Baltimore, Md. 21214  
 LT. JOHN THOS. STRINGER, M.D.  
 Naval Hospital, Portsmouth, Va.\*

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 UNIVERSITY OF MARYLAND

HARVEY CLIFTON BRIDGERS, M.D.  
 Blue Ridge Summitt, Pa.  
 LOUIS ARTHUR BUIE, M.D.  
 200 First St. S.W., Rochester, Minn.  
 CHARLES A. CAIN, M.D.  
 2145 W. Baltimore St., Baltimore, Md. 21223  
 THOS. M. CALLADINE, M.D.  
 1102 Niagara Ave., Niagara Falls, N. Y.\*  
 RALPH COHEN, M.D.  
 2311 Univ. Blvd., W., Silver Spring, Md. 20902  
 VINCENT J. DEMARCO, M.D.  
 1642 Poplar Ave., Memphis, Tenn. 38104  
 ALBERTO GARCIA DE QUEVEDO Y MUÑOZ, M.D.  
 CCC Hdqtrs., Whipple, Ariz.\*

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JOS. JUDSON WAFF, M.D.  
Box 235, Shenandoah, Va.  
EUGENE JOSHUA KARL ZELLER, M.D.  
2739 Eastern Ave., Baltimore, Md. 21224  
MARK V. ZIEGLER, M.D.  
Olney, Maryland 20832

\* Last known address.

**Deceased**

R. BINION, M.D.  
JOCELYN BLACKMER, M.D.  
W. A. BRIDGES, M.D.  
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**Dr. Franz, Alumni President,  
Appoints Nominating Committee  
for 1965**

At the regular meeting of the Alumni Association in 1964, the election of a Nominating Committee for the ensuing year did not take place. Accordingly, a committee has been appointed consisting of the following physicians:

Dr. George H. Yeager, *Chairman*  
Dr. Gibson J. Wells, *ex-officio*  
Dr. Raymond M. Cunningham  
Dr. David Levy  
Dr. Donald W. Mintzer

# Class NOTES

ELSEWHERE in this edition you will find a "tear out" page, for reporting Alumni News to the BULLETIN. This is not an idle gesture.

Your achievements, fellow alumnus, are of interest to your classmates. They constitute a reward to the faculty, are a challenge to the younger physicians, and are an item of prestige for the University. Please cooperate with us by forwarding news of yourself or any alumnus to the BULLETIN. Thank you.

## Class of 1904

**Dr. Howard G. Stevens** of New Milford, Connecticut, has been presented a special sixty-year honor certificate by the Medical Alumni Association. Dr. Stevens, who is still in active practice, was present at the annual alumni day on May 8, 1964.

## Class of 1929

**Dr. Jacob H. Conn** was re-elected president of the American Board of Medical Hypnosis. He has also been named a member of the National Scientific Advisory Council of the International Society for Comprehensive Medicine. He also serves as a member of the Editorial Board of its Journal.

## Class of 1934

**Dr. John N. Snyder** has been elected President of the Baltimore County Medical Association. Dr. Snyder practices at 6348 Frederick Avenue in Catonsville, Maryland.

## Class of 1936

**Dr. Harry C. Bowie** has announced his association with Dr. Frederick W. Plugge in the practice of general surgery with offices at 926 St. Paul Street, Baltimore.

## Class of 1937

**Dr. Ephraim T. Lisansky**, Associate Professor of Medicine and Associate Professor of Clinical Psychiatry, was the moderator of a panel entitled "The Non-Psychiatric Physician in His Office" held on the occasion of the Maryland Conference on Community Mental Health, September 30, 1964.

## Class of 1940

**Dr. Walter R. Graham** was a recent visitor to San Juan, Puerto Rico, where Dr. Graham renewed old acquaintances with classmates Dr. Guillermo Pico, Professor of Ophthalmology, and Dr. Luis Guzman Lopez, Professor of Neurosurgery at the Medical School of the University of Puerto Rico.

## Class of 1941

**Dr. Joseph C. Sheehan** of 208 West Street, Annapolis, Maryland, has announced his disassociation from a former partnership. Dr. Sheehan specializes in obstetrics and gynecology.

## Class of 1942

**Dr. Otto C. Phillips** of the Magee-Women's Hospital, Pittsburgh, Pennsylvania, has been named Associate Fellow of the American College of Obstetricians and Gynecologists at its annual meeting held in Miami Beach, May 1964.

## Class of 1943

**Dr. Harold Dillon** of 269 South 19th Street, Philadelphia, Pennsylvania, re-

cently completed a trip to India and Pakistan as a consultant for the Peace Corps. Dr. Dillon was recently elected to membership in American Psychoanalytic Association.

#### Class of 1944

**Dr. Henry W. D. Holljes** has announced the relocation of his office for the practice of internal medicine and diseases of the chest to Suite 201, Medical Arts Building, 101 West Read Street in Baltimore.

#### Class of 1945

**Dr. Frank J. Ayd, Jr.**, has received the Saint Vincent Pallotti Award from the Pallottine Fathers of the Immaculate Conception Province for his outstanding contributions to psychiatry.

#### Class of 1947

**Dr. Donald E. Fisher**, Chief Health Officer of the Carroll County (Maryland) Health Department, presented a paper entitled "An Integrated Medical-Community Approach to Mental Illness" at the Maryland Conference on Community Mental Health held in Baltimore on September 30, 1964. Dr. Fisher also participated in a panel entitled "The Non-Psychiatric Physician in His Office."

#### Class of 1951

**Dr. David Kipnis**, Associate Professor of Pediatrics at the Washington University School of Medicine, has been named Director of a Pediatric Unit established by the University in the St. Louis Children's Hospital. The unit is supported by the National Institutes of Health.

#### Class of 1955

**Dr. Henry Booth Higman**, former Instructor in Neurology at Louisiana State University School of Medicine, has

been appointed to the staff of the Department of Neurology at Presbyterian-St. Luke's Hospital, New York.

Author of eleven scientific papers dealing with the chemistry of conduction and transmission of nervous impulses, Dr. Higman is a member of the American Medical Association and American Academy of Neurology. In addition to working in the investigative field of neurology, Dr. Higman will continue his research study of nervous impulses. The electric eel, nature's most potent generator of electricity, will be used in this project.

Dr. Higman, who has received an appointment as Assistant Professor of Neurology at the University of Illinois College of Medicine, received his B.A. degree in 1950 at St. John's College, Annapolis. He received his M.D. degree in 1955 from the University of Maryland School of Medicine, served a rotating internship at the Delaware Hospital, Wilmington, and a residency in neurochemistry at Columbia University under the National Institutes of Health. He received certification from the American Board of Psychiatry and Neurology, in neurology in 1963.

#### Class of 1956

**Dr. Richard A. Finegold** of 3600 Forbes Avenue, Pittsburgh, Pennsylvania, has been certified by the American Board of Urology in the specialty of urology.

#### Class of 1957

**Dr. Frederick W. Plugge** has announced his association in the practice of general surgery with Dr. Harry C. Bowie.

#### Class of 1958

**Captain Robert E. Cranley, MC, USAR**, who is a member of the staff of the Armed Forces Institute of Pathology

ALUMNI ASSOCIATION SECTION

specializing in bone diseases, has been active as a lecturer, having addressed the staff of the St. Agnes Hospital in Baltimore and on other occasions having spoken on "Tumors of Bone" and on diseases of interest to an orthopedist.

**Class of 1958**

**Dr. William John Marshall** of 315 Aberdeen Avenue, Dayton, Ohio, has completed a three-year fellowship in cardiology at the University of Cincinnati School of Medicine. Dr. Marshall has been recently appointed to a Geographical full time position under the American Medical Research Foundation at the Cox Memorial Coronary Heart Institute in Dayton. Dr. Marshall will undertake a program of clinical research in degenerative heart disease and at the same time will undertake a limited private practice.

**Class of 1960**

**Dr. Morton E. Smith**, who is currently at the Ophthalmic Branch of the Armed Forces Institute of Pathology in

Washington, was the author of a recent paper (see abstract section) entitled "Retinal Involvement in Adult Cytomegalic Inclusion Disease."

**Class of 1962**

**Dr. Melvin D. Kopilnick** of 4501 Hawksbury Rd., Pikesville, Md., will begin a residency in Urology at Sinai Hospital of Baltimore on July 1, 1964.

**Captain David G. Musgjerd**, MC, USAF, has graduated from the U. S. Air Force School of Aerospace Medicine. Dr. Musgjerd is being assigned to the 868th Medical Group at Goose Bay Air Force Base, Labrador.

**Class of 1963**

**Dr. Eugene J. Wolski** completed his rotating internship at the Union Memorial Hospital in June, 1964. Dr. Wolski then entered military service in the U. S. Navy as a flight surgeon and is now at the School of Aviation Medicine in Pensacola, Fla.

# Deaths

## Class of 1895

**Dr. William Spedden Seymour** of Easton, Maryland, died June 27, 1964, at the age of 93.

## B. M. C. 1896

**Dr. Richard H. Morris**, 93, of 35 Corey Street, Everett, Massachusetts, and a practicing physician and surgeon for more than 60 years, died on July 8, 1964, at the Whidden Memorial Hospital.

A native of St. Johns, New Brunswick, Dr. Morris also attended Loyola University Medical School, beginning practice in 1896 in Everett, retiring only eight years ago.

He was one of the founders of the Whidden Memorial Hospital and served on its surgical staff as well as the surgical staffs of the Winthrop Community, Melrose-Wakefield, Lawrence Memorial, and Malden Hospitals. He was a fellow of the American College of Surgeons and a member of the Massachusetts Medical Society.

## B. M. C. 1898

**Dr. Burton W. Fassett**, of 123 West Main Street, Durham, North Carolina, and one of the oldest living alumni of the School of Medicine, died on May 19, 1964, at the age of 89.

## Class of 1899

**Dr. Arthur J. Edwards** of 615 Chester Street, Bristol, Tennessee, died May 4, 1964, at the age of 93.

## B. M. C. 1901

**Dr. Ralph Gibson Perry, Sr.**, died at the Mary Fletcher Hospital in Bur-

lington, Vermont, on February 12, 1964, at the age of 87.

Following his graduation from the Baltimore Medical College, he entered practice at Jarvisville, West Virginia, from 1901 to 1911, and from 1911 to 1948 he practiced at Wells River, Vermont. He was Past President of the New Hampshire Surgical Club and was Past President of the Grafton, New Hampshire, County Medical Society.

## P & S 1907

**Dr. Joseph C. Peck** of 1209 5th Street, Moundsville, West Virginia, died August 25, 1964, at the age of 81.

## Class of 1908

**Dr. Ernest Verlin Nolt** of 709 W. Park Drive, Columbia City, Indiana, died on June 2, 1964, at his home where he had practiced for 54 years. Dr. Nolt was 80.

## P & S 1910

**Dr. William Byrd Hunter** of 1401 Cadiz Avenue, Coral Gables, Florida, died May 13, 1964. Dr. Hunter was 80.

## Class of 1912

**Dr. William Michel** of 1015 Poplar Grove Street, died on June 22, 1964.

## Class of 1912

**Dr. Russell H. Dean** of 445 St. James Building, Jacksonville, Florida, died April 21, 1964. Dr. Dean was 74.

## P & S 1912

**Dr. Fritz Juette Kimsey** of 2700 Harford Avenue, Baltimore, Maryland, died June 22, 1964.

## P & S 1913

**Dr. Ralph E. Cloward** of 2895 Kalakaua Avenue, Honolulu, Hawaii, died May 7, 1964.

**P & S 1915**

**Dr. Adlai E. Callaghan** of 1015 Boston Building, Salt Lake City, Utah, died April 9, 1964, at the age of 74.

**P & S 1915**

**Dr. Rufus Woodall** of 822 Almeria Avenue, Coral Gables, Florida, died March 6, 1964, at the age of 74.

**Class of 1917**

**Dr. Carl Otto Wolff** of 501 1st West Street, Haynesville, Iowa, died August 14, 1964. Dr. Wolff was 72.

**Class of 1919**

**Cyrus F. Horine** died at Union Memorial Hospital, Baltimore, on Wednesday, February 26, 1964. Death was the result of rapidly recurring attacks of coronary occlusion. Dr. Horine was 66.

Following his graduation from the School of Medicine, he entered the practice of surgery and served as resident surgeon at the University Hospital, later joining the staff and becoming Associate Professor of Surgery in the School of Medicine.

At the time of his death, he was medical director of the Maryland State Police and consultant surgeon to the Maryland State Roads Commission and the Maryland Training School for Boys. During World War II, he conducted a study for the state aimed at minimizing an imbalance caused by military needs and the needs of the civilian population.

A competent surgeon, Dr. Horine was deeply interested in the problems of intestinal anastomosis. He also published studies on intrapericardial tension, publishing also on the healing of wounds. His inventive mind resulted in a number

of patents, chiefly relating to the relation of suture materials and dispensers.

A native of Meyersville, Frederick County, and a graduate of Western Maryland College, he also attended St. Johns College. He was a member of the Baltimore City Medical Society, the Medical and Chirurgical Faculty of Maryland, the American Medical Association, the American Academy of Medicine and Surgery, and the Southern Medical Association.

**Class of 1921**

**Dr. Louis Lass** of 2314 Broad Avenue, Altoona, Pennsylvania, died of heart disease on May 19, 1964. Dr. Lass had been in the general practice of medicine in Altoona, Pennsylvania, for over forty-two years. He was a member of the staff of the Altoona (Pennsylvania) Hospital. Dr. Lass was 67.

**Class of 1931**

**Dr. Michael Krosnoff** of Scenery Hill, Pennsylvania, died recently.

**Class of 1928**

**Dr. S. Zachary Vogel** of 87-33 95th Street, Jamaica, New York, died May 14, 1964, at the age of 60.

**Class of 1935**

**Dr. Miguel A. Alonso**, P. O. Box 8216, Fernandez Juncos Station, of Santurce, Puerto Rico, died of a blood dyscrasia at his home on July 26, 1964. For a number of years he was a leading otolaryngologist in Puerto Rico.

Following his graduation from the School of Medicine, he served his internship at the South Baltimore General Hospital and then entered general practice in medicine in San Juan in 1936.

During World War II, he served as a consultant in anesthesiology throughout the island. Following the War, he entered specialty training in otolaryngology at the Barnes Hospital in St. Louis. He ultimately became a fellow of the American Academy of Ophthalmology and Otolaryngology, the American Academy of Chest Physicians, and the American Laryngological, Rhinological and Otological Society. He was a member of the International College of Surgeons and the American Medical Association. He was also a founder member of the Centurion Club of the Deafness Research Foundation.

Dr. Alonso devoted much of his time gratuitously to the problems of the deaf. He was a Clinical Professor of Otolaryngology at the University of Puerto Rico School of Medicine and, from his great medical efforts, two generations of Puerto Rican physicians give testimony to his Hippocratic ideals.

Dr. Alonso is survived by his wife, and two physician sons, both graduates of the Yale Medical School. One, Dr. Miguel R. Alonso, is serving as a resident in otolaryngology at Johns Hopkins, and his brother, William A. Alonso, is serving his internship at the Hospital of the University of Pennsylvania.

### Class of 1936

**Dr. Millard F. Squires** died recently at his home, 507 S. Maryland Avenue, Richardson Park, Delaware. Dr. Squires was 58.

A native of Wilmington and a graduate of the Alexis I. duPont High School, Dr. Squires attended Washington College in Chestertown, Maryland, and Lycoming College, Williamsport, Pennsylvania.

Following his graduation from the School of Medicine, he served in the United States Navy from 1942 to 1946. He then returned to Wilmington, becoming active on the staff of the Delaware Hospital and the Wilmington General Hospital. Dr. Squires was also an active member of the New Castle County Medical Society and the Delaware State Medical Society.

Long interested in youth and in athletics, Dr. Squires had been team physician for the Conrad High School and the Richardson Park Junior High School football team, rarely missing a game and often being in attendance at practice sessions. His interest in young people had been lifelong. For a while, he served as a member on the Conrad High School Board of Trustees. He was a member of the Richardson Park Methodist Church.

## ALUMNI NEWS REPORT

## TO THE BULLETIN:

I would like to report the following:

## SUGGESTIONS FOR NEWS ITEMS

## American Board Certification

## Change of Address

## Change of Office

### Residency Appointment

### Research Completed

### News of Another Alumnus

#### Academic Appointment

## Interesting Historic Photographs

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